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# Effects of Yoga on Student Attention in Pre-K

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# Effects of Yoga on Student Attention in Pre-K

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By

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TABLE OF CONTENTS

**Abstract**

The purpose of this study was to examine the effects *Yoga Calm* (Gillen & Gillen, 2009) had on student attention in Pre-Kindergarten students. Nine pre-kindergarten students receiving special education services at an elementary school participated in 5-10 minutes of yoga practice each day in a small group environment before returning to a large group setting for shared reading. The yoga time consisted of teaching of different sequences along with breathing techniques that could also be used independently. Observations were conducted on a weekly basis during shared reading. The observations focused on whole body listening (eyes, ears, mouth, hands, arms, legs, feet), teacher prompts needed for students to continue to attend, and student affect during the observation. A questionnaire was completed by the general education teacher at the beginning and end of the study. The questionnaire that used was the *CONNERS 3 – Teacher Short*. Students completed an affect survey daily, before and after participating in yoga. Findings from the study show that yoga during the school day increased attention and decreased hyperactivity in students. The biggest increase was seen through observation, where attention increased by more than 4 minutes on average.

# CHAPTER ONE

## General Problem/Issue

**Background information.** Attention in pre-kindergarten students, especially those identified with a disability is often difficult for many students while in school. The students on my caseload fall into the categorical disabilities of developmental delay (3-6 years), developmental cognitive disability, emotional and/or behavior disability, and autism spectrum disorders.

As the early childhood special education teacher, my focus is to support these students in the general education classroom to give them as much inclusion time as possible and when appropriate for their level of skills. Each child has different goals and varying levels of skill in all areas which is a challenge in itself.

**Purpose of the study.** One particularly difficult part of the day for most students while in the inclusion setting is shared reading (a book being read aloud by the teacher). The expectation during this time is that the students will sit at the carpet quietly, while attending to the book and participating by answering questions or commenting when asked.

The majority of my students have a difficult time with this task. They will get up halfway through the story and leave the carpet for a more "preferred" area of the room and will yell/ignore/cry if we try to bring them back to the carpet. The students who stay at the carpet, will often be looking off in other directions or laying down during the book.

**Rationale.** A few things I have tried during this time of the day is flexible seating, (use of a chair, wobble stool, yoga ball, wiggle seat, egg chair), fidgets, and gum. Some adaptations work well for children, some seem to work for a short period of time and then become ineffective, and some of these adaptations help but are inconsistent. If yoga improves focus and attention of

students, it can be an accommodation they can use throughout their educational career to help make their time in inclusion settings more beneficial and successful.

**Statement of hypothesis.** If yoga is implemented on a daily basis prior to shared reading, then the students will show an increase in self-regulation, attention, and time on task during the shared reading lesson.

## Subjects and Setting

**Description of the subjects.** Participants for this study were nine Pre-K students receiving special education services through an Individualized Education Plan at a suburban school in the Minnesota. All students participated in the study with parent consent.

**Selection criteria.** These students were all on my caseload and were receiving services during the 2018-2019 school year. We met in small groups of four-five before a large group activity in the Pre-Kindergarten classroom. The small group setting was and continues to be ideal for teaching new strategies and interventions.

**Description of the Setting.** The elementary school I conducted this research at is a suburban school in Minnesota. The school ranges from Pre-K to 5th grade with about 300 students overall. At the time of the study, the school was receiving Title 1 support and almost 62% of the population received free or reduced lunches. This elementary school has been open since 1988 and is one of sixteen in the district. 53% of the population were Caucasian, 16% were African American, 8% were Asian, 14% were Hispanic, and 8% were Multiracial.

## Research Ethics

**IRB approval.** Permission was obtained from the Institutional Review Board at Minnesota State University and from the school district to conduct this study. Protocol from the Review Board at the University and the school district was precisely followed. This involved

receiving permission from the Superintendent of Schools as well as from the building principal where the research was conducted. The principal letter can be found in Appendix A.

**Permission.** The choice to participate in the study, or withdraw at any time, was presented to parents/guardians both verbally and in writing, and verbally to students.

**Informed consent.** A letter was sent to parents explaining what their role and their child's role was in this study. They were asked to sign the form and return it to the co-investigator in order for their child to participate. The letter explained the risks, benefits and their ability to withdraw their child at any time. A sample consent form can be found in Appendix B.

# CHAPTER TWO

## Review of Literature

Attending to tasks in a large group setting is difficult for many students, especially preschool aged children and students with disabilities. Although preschool includes a good amount of learning through play, structured activities are still included in the day. During these structured activities, teachers are expected to hold the attention of a classroom full of learners who often have little experience in large group structured settings. This proves to be a difficult task with so many varying needs within the classroom. Even though the research is still new and therefore limited in quantity, each article I read supported yoga in the classroom and the effects it has on students attention, concentration, executive functioning, and stress relief.

### Benefits of Movement

A typical preschool day is often filled with movement activities and learning through play. This is because there is a large amount of research on children learning through play. In their book *A Moving Child is a Learning Child,* Gill Connell and Cheryl McCarthy state that "the body is the brain's first teacher." They also describe the learning cycle as "The more a child moves, the more a child know. The more a child knows, the more a child wants to know. The more a child wants to know, the more a child needs to move." (2014, pg.7) Moving is essential to learning for children. *Move, Play, and Learn with Smart Steps* (2016), is a great resource to use for sequential movement activities that can be used anywhere. Many of the activities are indoor and outdoor activities and just require space. Connell, Pirie, and McCarthy explain that the more room children have to move and play, the more their learning with intensify as they challenge their bodies in new ways (pg. 30).

## Benefits of Yoga

**Yoga for all students.** Yoga can be used as a school wide approach for positive behavior support or as brain breaks for students throughout the day. "Yoga as a School-Wide Positive Behavior Support" (2017) explains how yoga can be used as a tool to support all students. In three different studies that used yoga as a Tier 1 Intervention, there was a positive decrease in involuntary reactions to stress in 100% of participants reported (Accardo, 2017, pg. 111). There was also reports of increased control of emotions and less anger (Accardo, 2017, pg. 111). "Yoga at School Helps Give Kids Brain Breaks and Reduces Stress" (2017) mentions how kids will use the bathroom just to take a break from the class, so why not incorporate a break that gets the mind and body working together (pg. 5). Yoga as a brain break can be done as mini breaks throughout the day to help students refocus, can involve deep breathing during stressful situations, or longer sequences before tests or lessons to increase focus (Scamarza, pg. 5).

Yoga is a support for all children that can help improve academic achievement, good health, relationships, and personal attributes throughout a school (Gillen & Gillen, 2009, pg. 20). "Yoga Calm for Children" (2009) is specifically designed to meet children's emotional, mental, and physical needs (Gillen & Gillen, 2009, pg. 25). Yoga Calm includes tools such as breathing techniques, yoga-based activities, social emotional activities, guided relaxation, and emotional guidance. By putting all the tools together, teachers of all ages and ability levels may see an increase/improvement in academic performance, self-esteem, behavior, ADHD, emotional balance, and stress reduction (Gillen & Gillen, 2009, pg. 21). Along with being a tool to support students mental and emotional health, yoga is also a tool that can be used to support physical development. A student with cerebral palsy received yoga instruction that aided her ability to crawl and walk (Stretching the Mind and Body, 2010).

## Yoga for Special Student Population

**Yoga and Down Syndrome.** "Yoga for Young Children with Down Syndrome" was just recently published in 2017. This article reviewed how yoga can offer a great physical activity for children with down syndrome while also providing additional benefits. It gives meaningful ways for teachers to implement yoga into their everyday routine. Young, Silliman-French, and Crawford (2017) believe that yoga facilitates concentration, balance, and self-control, while improving gross motor skills, posture, eye contact, imitation, time on task, sleep, play habits, anxiety, and breathing (pg. 18). Yoga can be infused into the general curriculum through physical education warm ups and cool downs and through transitions in the classroom. It can be used across all settings in the school to make connections and generalize student learning (Young, Sillman-French, Crawford, 2017, pg. 19). Gruber and Poulson state that yoga shows increases in lower body strength along with balance in children with developmental disabilities (2016, pg. 193). These article provided many great best practice ideas for using yoga with students with down syndrome and developmental delays and how it can be beneficial to them.

**Yoga and Autism Spectrum Disorders.** Similar to the article "Yoga for Young Children with Down Syndrome," "Yoga for Children on the Autism Spectrum" focused on the benefits research has revealed and how yoga can be used as an intervention for children on the spectrum. Ehleringer (2010) noticed yoga skills generalizing more quickly in her classroom than other skills she has taught. Students were able to use the yoga breaths and stretches as a self-regulation tool when upset or stressed with online a simple prompt (pg. 132). Ehleringer reports parents noticing changes in their child's strength, flexibility, awareness of breath, attention, digestion, and overall sense of calm (pg. 132). Yoga can be used as a relaxing scheduled break in a child's day or as needed as heavy work or a self-calming intervention (Ehleringer, 2010, pg.

134). The idea of yoga being used as both an everyday break and an intervention for students with disabilities is important in my research on using yoga as a precursor to non-preferred activities.

**Yoga and Emotional and Behavioral Disorders.** "Yoga in an Urban School for Children with Emotional and Behavioral Disorders: A Feasibility Study" (2013), focused mainly on the benefits of yoga in children with emotional behavior disorders and ADHD. According to Steiner, Sheldrick, Sidhu, and Perrin the study lasted for 2 years, with student participation in 3 ½ month stints of 2 days a week of yoga practice in a group environment of about 10 students (pg. 817). The yoga programs followed the yoga ed curriculum which fosters development in self-control and emotional regulation. A majority of parents whose child participated in the yoga curriculum were pleased with the results and noted improvement in increased energy, calmness, and happiness. Teachers noted improvements in internalizing problems, behavioral symptoms and adaptive skills (pg. 821). Overall, it seemed the yoga had a positive impact in student behavior and attitude. According to Beswick (2018), yoga has also been noted to be a coping skill for students who have experienced trauma that they respond to both positively and rather quickly (pg. 1). Dr. Becky Bailey comments on the importance of calming your body through taking a pause and breathing in order to self-regulate (2011, pg. 96). Pausing to calm before identifying your feelings is a great tool for students to use to begin to understand how their bodies and minds are connected. Often students with disabilities, especially those who are impulsive, struggle with this step. Yoga is a way to get students to pause during their day and listen to their bodies.

**Yoga and ADD/ADHD.** "The Benefits of Yoga for Children in Schools" (2015) discussed the learning challenges of students with ADD and ADHD. Eggleston states, "Students

who have ADD/ADHD often feel empowered when they learn techniques to expand and deepen their breathing which then make it easier to focus on class" (2015, pg. 3). According to Eggleston, teachers are constantly looking for new methods to support students with learning challenges, and yoga has been one method that has shown to be effective in children (pg. 3). More research is still needed to show that yoga alone is the method supporting student success and focus.

Each of the piece of literature reviewed, supported my thoughts and gave me hope that implementing a body break, specifically yoga, will be helpful to my students in the areas of self-control, attention, and emotional regulation. Reviewing these pieces of literature spark an excitement to continue the research and dive deeper into the effects of yoga on students and classrooms as a whole. It's exciting to see that yoga has been a successful intervention for many students and sparks hope that it will have the same positive effects on students in my classroom.

# CHAPTER THREE

## Methodology

### Research Questions

As the special education co-teacher in a pre-kindergarten classroom I am able to spend much of the day working with my students in both the special education and inclusion settings. I am able to see how difficult it is for them to focus during any large group instructional time. With it already being more difficult for them to focus and attend to tasks in all settings than their typically developing peers, I have worked hard to find interventions that will increase their attention, allowing them to get the most out of their time at school. With this in mind, I came up with the following research questions:

1. How does implementing yoga in school affect student attention and time on task during shared reading?
2. How does yoga impact specific student populations, such as down syndrome, autism, emotional behavior disorders, and other health disorders (ADHD)?

Answering these questions helped me learn more about yoga and how I can implement it as an intervention to support attention in all of my students.

### Methods

My plan was to implement a time of yoga practice into every school day before large group shared reading. This time of yoga will lasted about 5-10 minutes and used the book *Yoga Calm for Children: Educating Heart, Mind, and Body* (Gillen & Gillen, 2017) as a reference on how to structure the sequences and how to tailor the time to increase focus and attention in the students. At the beginning of the research, students were observed and data was collected through observation on whole body listening and attention time during the activity of shared

reading. During the research, nine students split into two separate groups based on their typical class time (AM or PM), received instruction in yoga on a daily basis. Each day, the yoga sequence was led by the special education teacher. Every movement was verbally explained, demonstrated, and completed with the students. All students continued to be taught and discuss other ways to regulate your body and received the instruction in the same room for the same amount of time. The students were taught at different times of the day based on whether they were in the morning or afternoon pre-kindergarten class. Yoga instruction took place each day prior to shared reading. After participating in yoga in the special education room, students were brought back to the inclusion setting for the shared reading portion of their day.

**Data Collection**

**Participants.** I studied nine Pre-Kindergarten students of varying disabilities who I case managed and worked with on a daily basis. Each of the students studied were receiving special education services.

**Research Design/Instruments.** Research took place on a daily basis over a six week time period. Each day, time was spent implementing an intervention and collecting data. Observations were conducted weekly throughout the study. Multiple methods and instruments of research were used including observation and surveys/questionnaires, with the highest priority being observation notes. Before the study began, the general education teacher filled out the *CONNERS 3 – Teacher Short* questionnaire (see Appendix C), which asks the teacher to rate students skills, focusing on attention and hyperactivity. Students took an affect survey each day before and after yoga to document how their body feels (Appendix D). The questionnaire was used to see if any changes were noticed through a teacher outside of the research study.

**Data Collection Procedure.** Before yoga was taught to students, data was taken through observation on each student's attention/whole body listening during shared reading. Once a week throughout the study, an observation was conducted during shared reading. The observations focused on whole body listening, (eyes, ears, mouth, hand, feet, arms, legs) teacher prompts needed for students to continue to attend, facial expressions, interactions, etc. throughout the story. A questionnaire was completed by the general education teacher at the beginning and end of the study. The questionnaire used was the *CONNERS 3 – Teacher Short*. Students completed an affect survey daily, before and after participating in yoga. The affect survey children completed connects to Dr. Becky Bailey and her Conscious Discipline model (2015). In this model, students must identify their feelings after they have reached a state of calm in order to self-regulate (2015, pg. 223). After calming through yoga, students were hopefully able to better understand how their bodies were feeling and what they needed.

**Data Analysis.** During each observation, I took note of how long they attended for and what parts of whole body listening they lost throughout the story. The data was then turned into a table to find the average time attending before losing part of your whole body listening, as well as how many parts of whole body listening they use daily and how that changes throughout the study. The teacher questionnaire showed any noticeable changes within the students attention, behavior, hyperactivity, etc. The student survey showed any patterns with regulation that yoga may have affected. If they were happy each day after yoga, or if throughout the study they grew more excited for yoga to begin each day.

**Limitations and Delimitations.**

**Delimitations.** I chose to only study the nine students receiving special education services rather than the entire Pre-K class due to wanting to focus on the attention in students

with disabilities. We often see less attention from students receiving services and I wanted to see if yoga can increase that attention time to begin to close the gap between students with disabilities and their typically developing peers.

**Limitations.** One limitation throughout this research was time. There was only about six weeks of time to teach the students yoga, get them practicing regularly (and correctly), and to see any changes in their attention.

**Ethical Issues**

Protection of human subjects participating in research was assured. Participants and their parents were informed of the purpose of research and any procedures required by the participant, including disclosures of risks or benefits. Confidentiality was protected through all data being presented anonymously. The risks to students were minimal, as permission was granted by parents for their students to participate.

# CHAPTER FOUR

## Data Analysis and Interpretation

### Description of Data

The purpose of this study was to find out the affects yoga has on students with disabilities, specifically student attention and time on task. It was also intended to show how yoga affects the different categories of disability. When looking at student attention during shared reading, I was looking for "whole body listening." (Hendrix, Palmer, Tarshis, Winner, pg. 125). Whole body listening is a social thinking concept from the book Th *Incredible Flexible You* (2013). Whole body listening includes keeping your eyes, ears, mouth, hands, arms, legs, and feet calm and quiet. During observations throughout this study I was looking for whole body listening. I took many notes on what student bodies looked like during shared reading to see who was participating in whole body listening and who was not.

From the baseline data, I got scores from the general education teacher using the CONNERS 3 rating scale as well as took observation notes on students during shared reading time. Throughout the six weeks of intervention, I continued to take observation notes on a weekly basis, and each student completed an affect survey on a daily basis before and after doing yoga. Throughout the six week time span, I noticed changes in student behavior. The CONNERS 3 was filled out again at the end of the intervention by the general education teacher, as well as one final observation being done on the last day of the intervention. The students also answered a few short interview questions with me on their thoughts about yoga. This data was used to determine where to go from here. Should I continue the intervention or try something else?

**Baseline Data.** Prior to the beginning of the yoga intervention beginning, the general education teacher filled out the CONNERS 3 rating scale on each student participating in the yoga study. In the CONNERS 3 assessment, scores of above 60 indicates moderate concern of ADHD. Scores above 70 indicate severe concerns of ADHD. The individual baseline data for each student is shown in Table 1.

Table 1.

*Baseline CONNERS 3 Data*

| | **Inattention** | **Hyperactivity / Impulsivity** | **Executive Functioning** | **Defiance / Aggression** | **Peer Relations** |
|---|---|---|---|---|---|
| *Student 1* | 46 | 58 | 40 | 50 | 73 |
| *Student 2* | 60 | 80 | 46 | 86 | 63 |
| *Student 3* | 60 | 66 | 48 | 45 | 63 |
| *Student 4* | 64 | 82 | 48 | 46 | 53 |
| *Student 5* | 65 | 69 | 46 | 55 | 63 |
| *Student 6* | 49 | 44 | 46 | 45 | 68 |
| *Student 7* | 60 | 74 | 46 | 55 | 58 |
| *Student 8* | 49 | 58 | 43 | 50 | 44 |
| *Student 9* | 69 | 75 | 53 | 46 | 68 |

Baseline data for the observation was also put into a table. The time listed under each whole body listening component is the time when they lost that part of whole body listening. If there is a check mark in an area, it means they used that component of whole body listening through the duration of the story. The story lasted for thirteen minutes. The observation baseline data is shown in Table 2.

Table 2.

*Baseline Observation*

| | ***Eyes*** | ***Ears*** | ***Mouth*** | ***Hands*** | ***Arms*** | ***Legs*** | ***Feet*** |
|---|---|---|---|---|---|---|---|
| *Student 1* | √ | √ | √ | 3:09 | 4:17 | √ | √ |
| *Student 2* | 0:45 | 2:34 | √ | 3:30 | 3:30 | 4:48 | 4:48 |
| *Student 3* | 1:02 | √ | √ | 4:16 | 4:16 | 3:21 | 3:03 |
| *Student 4* | √ | √ | 3:32 | 5:06 | 5:06 | √ | √ |
| *Student 5* | 4:42 | √ | √ | 7:56 | 7:56 | 0:48 | 0:48 |
| *Student 6* | √ | √ | √ | √ | √ | 2:06 | 2:06 |
| *Student 7* | 0:36 | √ | 1:57 | 3:32 | 8:30 | 2:58 | 2:58 |
| *Student 8* | √ | √ | 10:16 | √ | √ | √ | 4:47 |
| *Student 9* | √ | √ | 2:22 | 1:04 | 1:04 | √ | √ |

**Research Questions**

**Research Question 1: How does implementing yoga in school affect student attention and time on task during shared reading?** Attention and time on task were difficult behaviors to measure. Through the CONNERS 3 rating scale as well as observations I feel I was able to get reliable data. Yoga instruction was provided at student level, moving slowly through the poses, and completing each pose multiple times before moving onto the next. The poses stayed consistent throughout the intervention with little variety to ensure all students were able to participate.

The baseline data showed 8 out of 9 students showing moderate concern for ADHD in at least one of the five categories. Of those 8, 5 students showed scores that would be described as

severe concerns. The baseline observation data showed all students struggled to show whole body listening for the duration of a story. On average, students lost whole body listening by 1 minute 54 seconds. At the beginning of this study, it was difficult for students to attend to a story in a group setting. After six weeks of yoga instruction and practice, 5 out of 8 (one student moved halfway through the study) students had scores showing moderate concern for ADHD. Of the 5 students showing moderate concerns only 1 student displayed scores that would be labeled as a severe concern. All students showed a decrease in scores in at least two of the five categories on the rating scale. Individual assessment results are shown below in Table 3.

Table 3.

*Assessment Results CONNERS 3*

| | **Inattention** | **Hyperactivity / Impulsivity** | **Executive Functioning** | **Defiance / Aggression** | **Peer Relations** |
|---|---|---|---|---|---|
| *Student 1* | 49 | 49 | 40 | 45 | 68 |
| *Student 2* | 53 | 63 | 43 | 71 | 63 |
| *Student 3* | 51 | 52 | 48 | 45 | 63 |
| *Student 4* | - | - | - | - | - |
| *Student 5* | 53 | 52 | 41 | 55 | 53 |
| *Student 6* | 44 | 40 | 41 | 45 | 63 |
| *Student 7* | 51 | 52 | 43 | 50 | 49 |
| *Student 8* | 40 | 47 | 43 | 45 | 44 |
| *Student 9* | 55 | 60 | 50 | 46 | 68 |

Similar to the data in the rating scale, observation data also showed an increase in whole body listening during shared reading. In the baseline observation data, all nine students lost attention in at least two areas of whole body listening. During the final observation, students lost

focus in a maximum of two areas, with two students only losing attention in one area and one student displaying whole body listening throughout the story. On average students were able to attend to the story for 6 minutes 37 seconds at the end of the six weeks of intervention. This is an increase in attention time of 4 minutes 43 seconds. This data supports previous research showing that yoga improves attention and can decrease the amount of medication needed for children with ADHD (White, 2009, pg. 277). See Table 4 for final observation results for individual children.

Table 4.

*Final Observation*

| | ***Eyes*** | ***Ears*** | ***Mouth*** | ***Hands*** | ***Arms*** | ***Legs*** | ***Feet*** |
|---|---|---|---|---|---|---|---|
| *Student 1* | √ | √ | √ | 5:17 | √ | √ | √ |
| *Student 2* | √ | √ | 4:18 | 5:09 | √ | √ | √ |
| *Student 3* | 3:43 | √ | 8:04 | √ | √ | √ | √ |
| *Student 4* | - | - | - | - | - | - | - |
| *Student 5* | 5:11 | √ | √ | √ | √ | √ | √ |
| *Student 6* | √ | √ | √ | √ | √ | 5:32 | √ |
| *Student 7* | √ | 3:12 | 4:23 | √ | √ | √ | √ |
| *Student 8* | √ | √ | √ | √ | √ | √ | √ |
| *Student 9* | 5:11 | √ | √ | √ | √ | 3:45 | √ |

According to both the rating scale and observations, students showed overall improvements in attention, hyperactivity, and whole body listening ability after the six weeks of

yoga instruction. Figures 1 and 2 show the comparison of the baseline data and final assessment data.

Figure 1.

*CONNERS Inattention and Hyperactivity Scores*

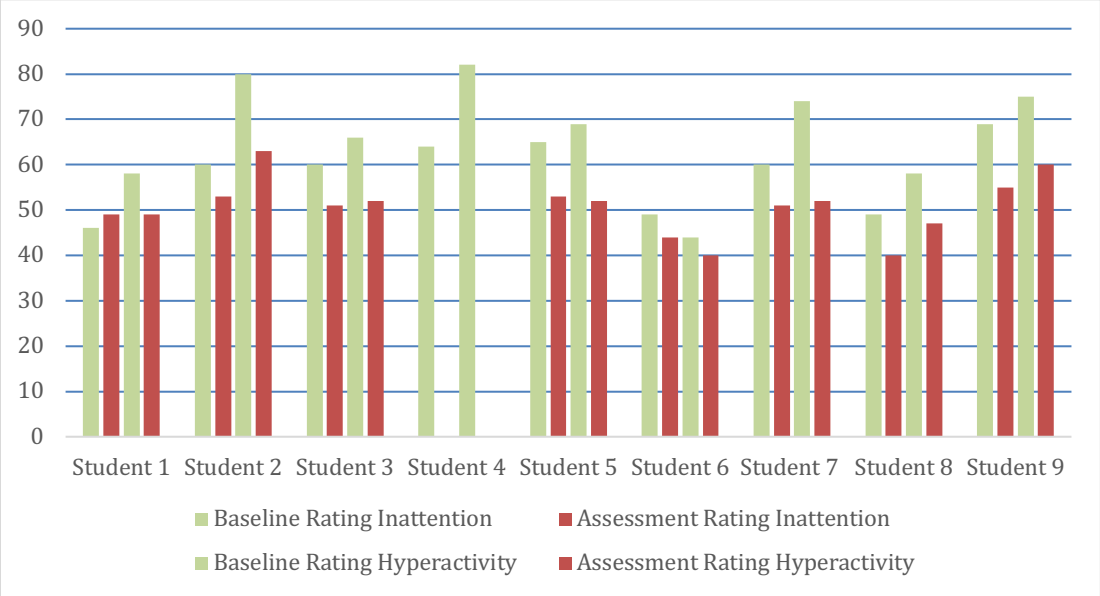
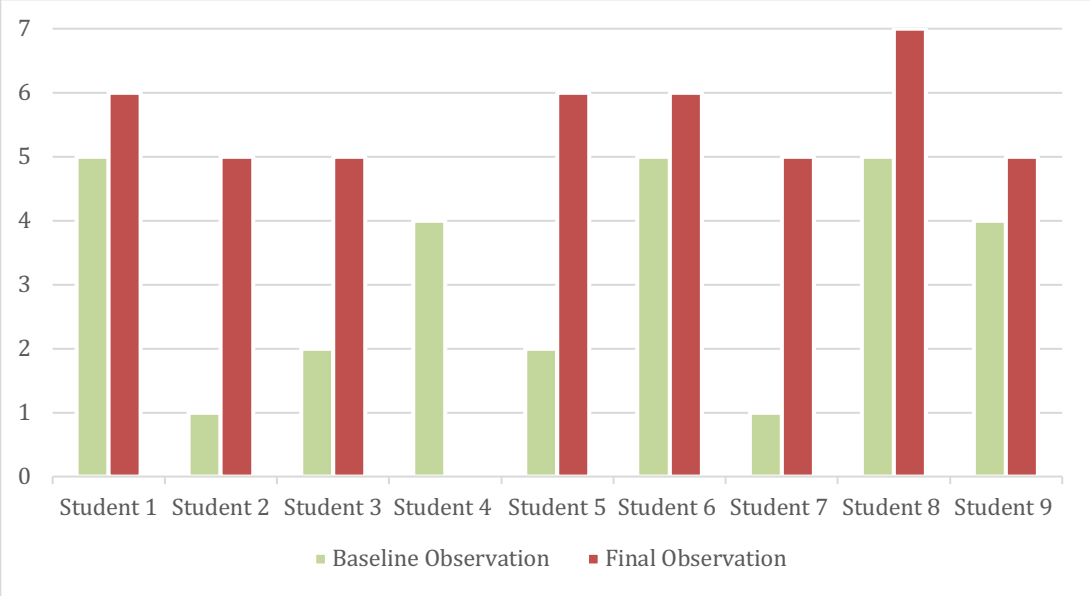



Figure 2.

*Parts of Whole Body Listening*



The other form of data collected was a student affect survey. Each day, prior to yoga instruction, students chose how they were feeling from a field of four different "smiley faces." Although, I thought this data was going to be telling of how the students felt about going in to yoga and how they felt after completing the yoga, I began to notice the children always choosing the happy face without giving it much thought or choosing sad or mad as they would be laughing or smiling. As I noticed this trend, I began to think of other ways I could determine how the students felt about yoga. I decided to interview them at the end of the study with four simple questions. The four questions they were asked are listed below:

1. Do you like doing yoga at school?
2. Why or why not?
3. How do you feel when you are doing yoga?
4. How do you feel after yoga?

All eight students interviewed said that they enjoyed doing yoga. 7 out of 8 children said they enjoy yoga because it is quiet and/or calm. 5 of 8 students mentioned feeling happy while doing yoga and 3 others said they feel calm or in the green zone. The green zone is a part of the Zones of Regulation Framework created by Leah Kuypers (2011). We use the Zones of Regulation in our school district to teach emotional regulation. The green zone is the state of calm. In this zone your body feelings would be described as happy, calm, focused, and ready to learn (Kuypers, 2011). When the students were asked how they felt after yoga, 5 said they feel happy, 4 said they felt in the green zone, and 3 mentioned feeling calm. The responses I received from my preschool students are similar to responses I read middle school students having. According to Kaelin Gillis, a physical education teacher who offered program support through yoga,

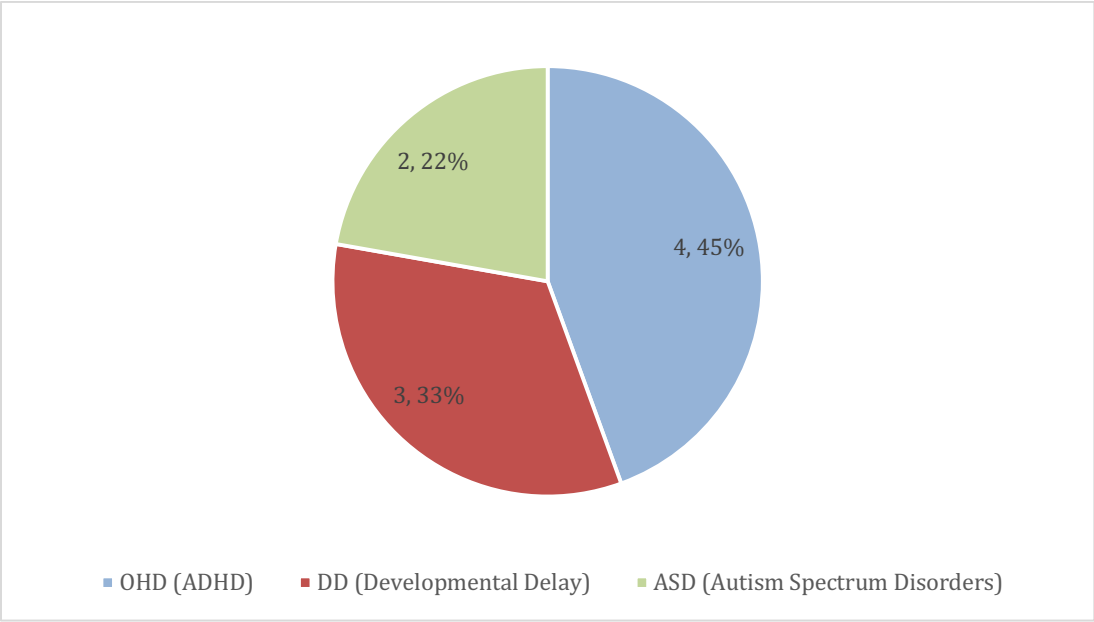
students reported "when I do yoga I feel relaxed and don't worry about things" and that "I enjoy yoga because I just have time to think" (2012, pg. 13).

Overall, the data I have shown displays a decrease in hyperactivity in students participating in yoga and an increase in attention. Based on all the research I had completed on yoga prior to beginning this study, I was not surprised, but I was surprised with how much of an impact yoga had.

1. **Research Question 2: How does yoga impact specific student populations, such as down syndrome, autism, emotional behavior disorders, and other health disorders (ADHD)?** This research question was much more difficult to analyze. I would like to continue to look at this question over my next few years of teaching to better understand how yoga effects specific populations differently. I will hopefully have the chance to study students of more disability categories during upcoming years. Figure 3 shows the student population make-up of the nine students who participated in the study.

Figure 3.

*Student Disability Makeup*



Even with a small group of students consisting of only a few disability categories, I saw the greatest impact in the students who have been diagnosed with ADHD. Of the nine students, four (2, 3, 5, & 7) have a medical diagnosis of ADHD. Hagen and Nayar have found that yoga helps to improve self-regulation skills in children with mental health disorders (2014, pg. 3). I believe that this is partly why there was a greater impact of students with ADHD. The yoga practice not only offered them a time of day to relax and find a sense of calm, it also offered them new ways to self-regulate, many that could be done anywhere at anytime (breaths). Having all students benefit from the yoga instruction was not the outcome I expected, but one I am happy with. I hope to continue exploring how yoga benefits students of different populations for years to come.

**Conclusions.** Yoga had an impact on my students. Over the six week intervention, I saw changes in behavior, engagement, aggression, attention, mood, and noticed a sense of calm that was not present before. Inattention decreased, hyperactivity decreased, and whole body listening increased thanks to yoga. The general education teacher commented on having less interruptions during shared reading and noticed less teacher prompts being given to my students. I hope that this intervention continues to be successful with these students and students in years to come.

# Chapter Five

## Action Plan & Plan for Sharing

### Action Plan

After seeing the impact yoga had on all my students and how much they enjoyed the intervention, I plan to continue implementing yoga in my classroom. Because the impact was so noticeable after only five minutes a day, I will continue to use the intervention on a daily basis. I will also be adding a phrase into each students Individualized Education Plan (IEP), under the adaptations section to include body break in the form of yoga. This will insure that they can continue to receive this intervention that is proving to be beneficial to them in years to come.

### Plan For Sharing

I plan to share my research with the other special education teachers at my building. I have already set up a time for two teachers to bring in one of their students to participate in the yoga with us. This will allow them to know exactly what our yoga breaks look like for when they are servicing these children in kindergarten, and also give them ideas on how to structure their own motor/body break times.

I also plan on connecting with my fellow early childhood special education teachers on how yoga has been beneficial in my room. We completed a training last year on yoga, but as far as I am aware, not many teachers have begun implementing it. I'm hopeful that looking at the data I have will give them the push they need to try it for themselves.

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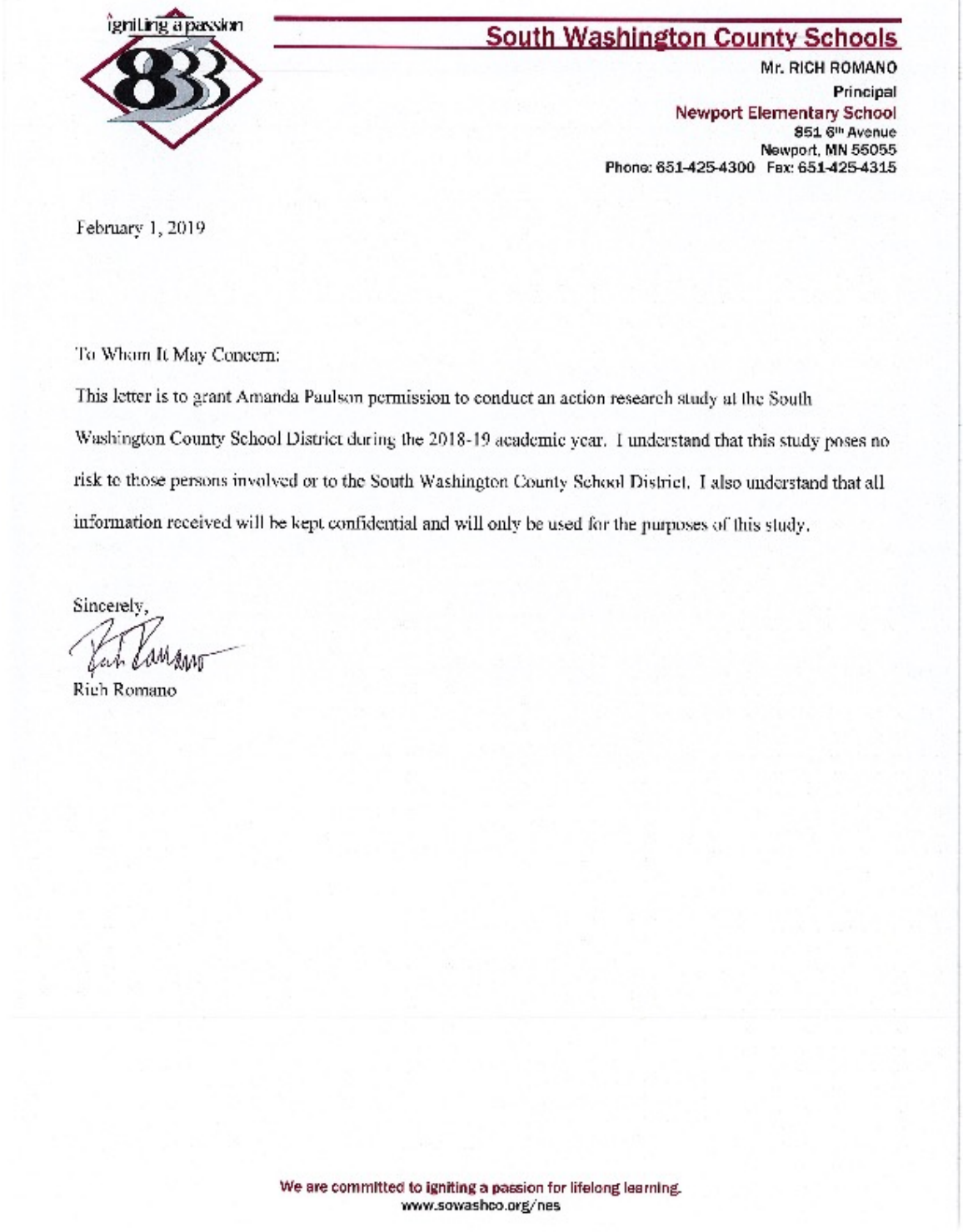
## APPENDIX A

*Building Principals Permission to Conduct Study*



igniting a passion

**South Washington County Schools**

Mr. RICH ROMANO
Principal
Newport Elementary School
851 6th Avenue
Newport, MN 55055
Phone: 651-425-4300 Fax: 651-425-4315

February 1, 2019

To Whom It May Concern:

This letter is to grant Amanda Paulson permission to conduct an action research study at the South Washington County School District during the 2018-19 academic year. I understand that this study poses no risk to those persons involved or to the South Washington County School District. I also understand that all information received will be kept confidential and will only be used for the purposes of this study.

Sincerely,

Rich Romano

We are committed to igniting a passion for lifelong learning.
www.sowashco.org/nes

# APPENDIX B

*Sample Consent Form*

igniting a passion 833

South Washington County Schools
Mr. RICH ROMANO
Principal
Newport Elementary School
851 6th Avenue
Newport, MN 55055
Phone: 651-425-4300 Fax: 651-425-4315

## Consent Form

***Please read this consent agreement carefully before agreeing to allow your child to participate in this study.***

**Title of Study:** Effects of Yoga on Student Attention in Pre-K

**Purpose of the study:** To discover how yoga affects student attention during shared reading in the general education setting.

**Study Information:** Students will participate in yoga sequences on a daily basis before shared reading. Data will be taken twice a week during shared reading by the co-investigator. General education teacher will fill out a short rating scale on each participant at the start and finish of the study. Each day, before and after yoga, students will answer a one question survey on how they are feeling. This is a written/visual survey where they will choose an face that displays their affect at that time.

**Time required:** The participants will complete the study during their typical school day of the 2018/2019 school year.

**Risks:** Participation in this study requires physical activity. The purpose of this study is increased attention, but the outcome is unknown. Increased attention is not guaranteed.

**Benefits:** Participation may increase student attention. Students may learn additional stretches and breathing strategies to increase their emotional regulation on a daily basis.

**Confidentiality:** All surveys and the data taken during the study will be presented anonymously to ensure students confidentiality.

**Participation and withdrawal:** Co-investigator will explain to the students that "your parents have given consent for you to participate in my research study. Participation is voluntary, and you can participate in as much or as little as possible. This study is to see how yoga affects your attention during shared reading and your feelings. I will lead 5-10 minutes of yoga every day before shared reading and take data on your attention. You will also take a survey at the beginning and end of each yoga study on your feeling."

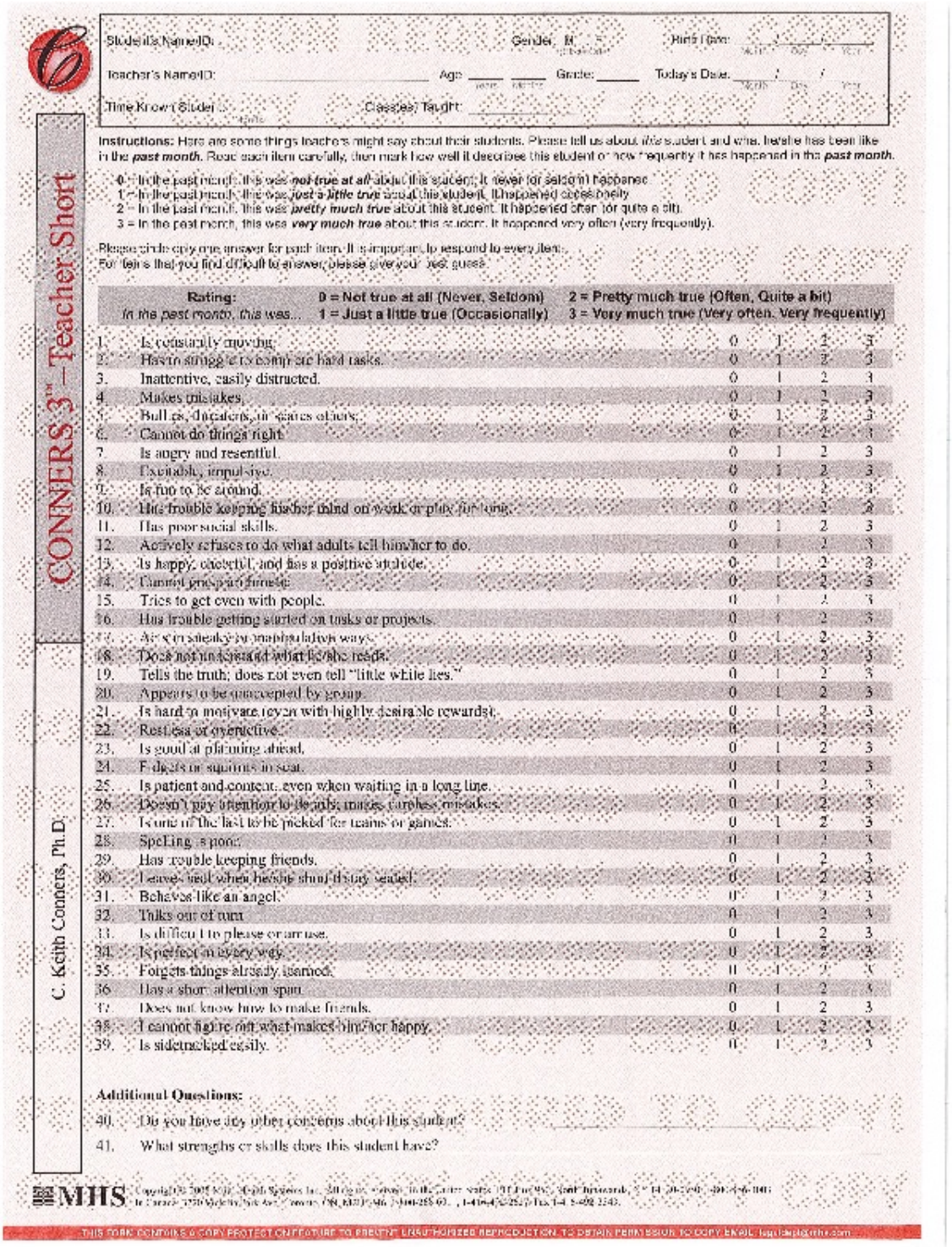
**Contact:**
Amanda Paulson, 651-425-4329, apaulson1@sowashco.org

**Whom to contact about your rights in this experiment:**
Courtney LaLonde, School of Teaching and Learning, 218-477-4278, Courtney.lalonde@mnstate.edu, or else you may contact Dr. Lisa I. Karch, Chair of MSUM Institutional Research Board, at irb@mnstate.edu or 218-477-2699.

**Agreement:**
The purpose and nature of this research have been sufficiently explained and I agree to participate and allow my child to participate in this study. I understand that I am free to withdraw myself and my child at any time and my withdrawal will not affect any future relationship with Amanda Paulson or the South Washington County School District.

## APPENDIX C

*CONNERS 3 – Teacher Short Rating Scale*



CONNERS 3™ – Teacher Short

C. Keith Conners, Ph.D.

Student's Name/ID: _____ Gender: M F Birth Date: ___/___/___

Teacher's Name/ID: _____ Age: ____ ____ Grade: _____ Today's Date: ___/___/___

Time Known Student: _____ Class(es) Taught: _____

**Instructions:** Here are some things teachers might say about their students. Please tell us about *this* student and who he/she has been like in the *past month*. Read each item carefully, then mark how well it describes this student or how frequently it has happened in the *past month*.

0 = In the past month, this was *not true at all* about this student; it never (or seldom) happened
1 = In the past month, this was *just a little true* about this student; it happened occasionally
2 = In the past month, this was *pretty much true* about this student; it happened often (or quite a bit)
3 = In the past month, this was *very much true* about this student; it happened very often (very frequently).

Please circle only one answer for each item. It is important to respond to every item.
For items that you find difficult to answer, please give your best guess.

| | Rating: *In the past month, this was...* | 0 = Not true at all (Never, Seldom)<br>1 = Just a little true (Occasionally) | 2 = Pretty much true (Often, Quite a bit)<br>3 = Very much true (Very often, Very frequently) | | | |
|---|---|---|---|---|---|---|
| 1. | Is constantly moving. | 0 | 1 | 2 | 3 |
| 2. | Has to struggle to complete hard tasks. | 0 | 1 | 2 | 3 |
| 3. | Inattentive, easily distracted. | 0 | 1 | 2 | 3 |
| 4. | Makes mistakes. | 0 | 1 | 2 | 3 |
| 5. | Bullies, threatens, or scares others. | 0 | 1 | 2 | 3 |
| 6. | Cannot do things right. | 0 | 1 | 2 | 3 |
| 7. | Is angry and resentful. | 0 | 1 | 2 | 3 |
| 8. | Is irritable, impulsive. | 0 | 1 | 2 | 3 |
| 9. | Is fun to be around. | 0 | 1 | 2 | 3 |
| 10. | Has trouble keeping his/her mind on work or play for long. | 0 | 1 | 2 | 3 |
| 11. | Has poor social skills. | 0 | 1 | 2 | 3 |
| 12. | Actively refuses to do what adults tell him/her to do. | 0 | 1 | 2 | 3 |
| 13. | Is happy, cheerful, and has a positive attitude. | 0 | 1 | 2 | 3 |
| 14. | Cannot [illegible] himself. | 0 | 1 | 2 | 3 |
| 15. | Tries to get even with people. | 0 | 1 | 2 | 3 |
| 16. | Has trouble getting started on tasks or projects. | 0 | 1 | 2 | 3 |
| 17. | Acts in sneaky or manipulative ways. | 0 | 1 | 2 | 3 |
| 18. | Does not understand what he/she reads. | 0 | 1 | 2 | 3 |
| 19. | Tells the truth; does not even tell "little white lies." | 0 | 1 | 2 | 3 |
| 20. | Appears to be unaccepted by group. | 0 | 1 | 2 | 3 |
| 21. | Is hard to motivate (even with highly desirable rewards). | 0 | 1 | 2 | 3 |
| 22. | Restless or overactive. | 0 | 1 | 2 | 3 |
| 23. | Is good at planning ahead. | 0 | 1 | 2 | 3 |
| 24. | Fidgets or squirms in seat. | 0 | 1 | 2 | 3 |
| 25. | Is patient and content, even when waiting in a long line. | 0 | 1 | 2 | 3 |
| 26. | Doesn't pay attention to details; makes careless mistakes. | 0 | 1 | 2 | 3 |
| 27. | Is one of the last to be picked for teams or games. | 0 | 1 | 2 | 3 |
| 28. | Spelling is poor. | 0 | 1 | 2 | 3 |
| 29. | Has trouble keeping friends. | 0 | 1 | 2 | 3 |
| 30. | Leaves seat when he/she should stay seated. | 0 | 1 | 2 | 3 |
| 31. | Behaves like an angel. | 0 | 1 | 2 | 3 |
| 32. | Talks out of turn. | 0 | 1 | 2 | 3 |
| 33. | Is difficult to please or annoy. | 0 | 1 | 2 | 3 |
| 34. | Is perfect in every way. | 0 | 1 | 2 | 3 |
| 35. | Forgets things already learned. | 0 | 1 | 2 | 3 |
| 36. | Has a short attention span. | 0 | 1 | 2 | 3 |
| 37. | Does not know how to make friends. | 0 | 1 | 2 | 3 |
| 38. | Cannot figure out what makes him/her happy. | 0 | 1 | 2 | 3 |
| 39. | Is sidetracked easily. | 0 | 1 | 2 | 3 |

**Additional Questions:**

40. Do you have any other concerns about this student? _____

41. What strengths or skills does this student have?

MHS [illegible]

THIS FORM CONTAINS COPY PROTECT CIRCUITRY TO PREVENT UNAUTHORIZED REPRODUCTION. TO OBTAIN PERMISSION TO COPY EMAIL [illegible]

CONNERS 3™ – Teacher Short

C. Keith Conners, Ph.D.

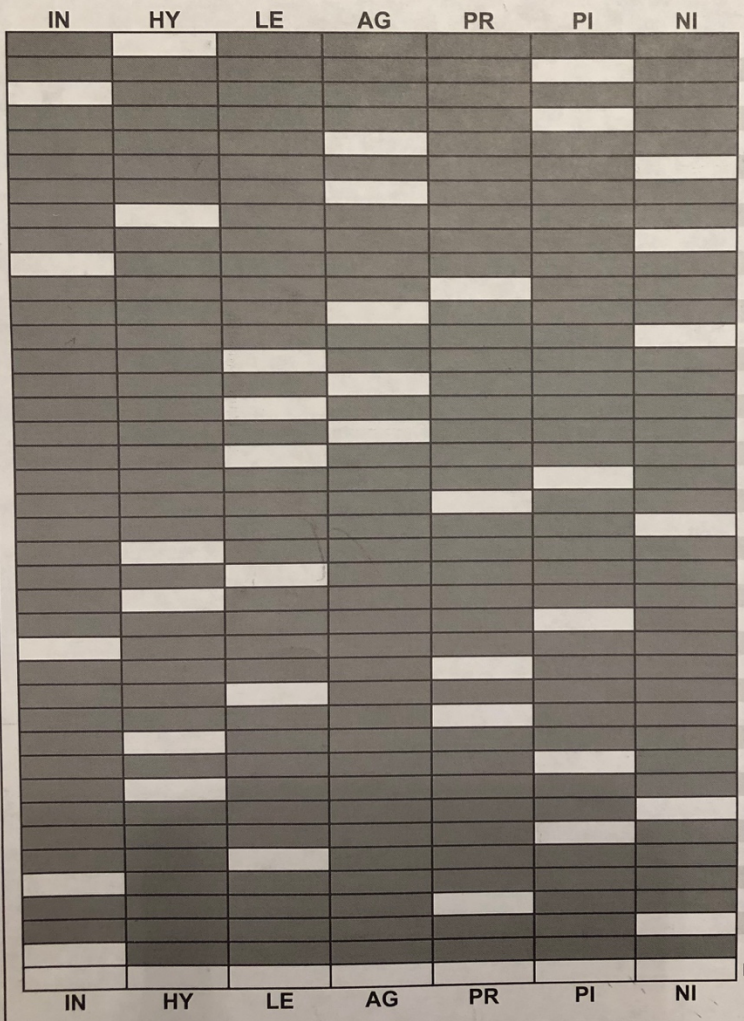
Student's Name/ID: _____ Gender: M F (Circle One) Birth Date: ____/____/____ Month Day Year

Teacher's Name/ID: _____ Age: ____ Years ____ Months Grade: _____ Admin Date: ____/____/____ Month Day Year

Time Known Student: _____ Months Class(es) Taught: _____

# Scoring Grid

**Instructions:**
1. For each item, transfer the circled number into the unshaded box across each row.
2. Sum the values in each column and write the totals in the Raw Score boxes at the bottom of the grid.



| | IN | HY | LE | AG | PR | PI | NI |
|---|---|---|---|---|---|---|---|
| 1. | 0 | 1 | 2 | 3 | | | |
| 2. | 1 | 0 | 0 | 0 | | | |
| 3. | 0 | 1 | 2 | 3 | | | |
| 4. | 1 | 0 | 0 | 0 | | | |
| 5. | 0 | 1 | 2 | 3 | | | |
| 6. | 0 | 0 | 1 | 1 | | | |
| 7. | 0 | 1 | 2 | 3 | | | |
| 8. | 0 | 1 | 2 | 3 | | | |
| 9. | 1 | 1 | 0 | 0 | | | |
| 10. | 0 | 1 | 2 | 3 | | | |
| 11. | 0 | 1 | 2 | 3 | | | |
| 12. | 0 | 1 | 2 | 3 | | | |
| 13. | 1 | 1 | 0 | 0 | | | |
| 14. | 0 | 1 | 2 | 3 | | | |
| 15. | 0 | 1 | 2 | 3 | | | |
| 16. | 0 | 1 | 2 | 3 | | | |
| 17. | 0 | 1 | 2 | 3 | | | |
| 18. | 0 | 1 | 2 | 3 | | | |
| 19. | 0 | 0 | 0 | 1 | | | |
| 20. | 0 | 1 | 2 | 3 | | | |
| 21. | 0 | 0 | 1 | 1 | | | |
| 22. | 0 | 1 | 2 | 3 | | | |
| 23. | 3 | 2 | 1 | 0 | | | |
| 24. | 0 | 1 | 2 | 3 | | | |
| 25. | 0 | 0 | 0 | 1 | | | |
| 26. | 0 | 1 | 2 | 3 | | | |
| 27. | 0 | 1 | 2 | 3 | | | |
| 28. | 0 | 1 | 2 | 3 | | | |
| 29. | 0 | 1 | 2 | 3 | | | |
| 30. | 0 | 1 | 2 | 3 | | | |
| 31. | 0 | 0 | 0 | 1 | | | |
| 32. | 0 | 1 | 2 | 3 | | | |
| 33. | 0 | 0 | 1 | 1 | | | |
| 34. | 0 | 0 | 0 | 1 | | | |
| 35. | 0 | 1 | 2 | 3 | | | |
| 36. | 0 | 1 | 2 | 3 | | | |
| 37. | 0 | 1 | 2 | 3 | | | |
| 38. | 0 | 0 | 1 | 1 | | | |
| 39. | 0 | 1 | 2 | 3 | | | |
| RAW SCORES | | | | | | | |

40. Do you have any other concerns about this student? _____

41. What strengths or skills does this student have? _____

## APPENDIX D

*Sample Student Affect Survey*

How are you feeling today?

How are you feeling after yoga?