

Incorporating Yoga into Reading Instruction  
By: Katy Ames

While pursuing my M.A. in curriculum and instruction I completed my thesis on the effects of integrating yoga thematically into reading instruction within the special education classroom. Specifically the classroom it was done in consists of students with autism. The program is based heavily on building language. I would read students stories with similar subjects. One story I would use yoga to help the students illustrate the story while reading. The other story I would use regular reading instruction. The order to which would come first, yoga instruction or reading instruction, would vary. The results indicated that reading instruction with yoga integrated thematically produced higher comprehension rates than regular reading instruction. The full thesis paper could be found on page ten of this document.

During this time I would use curriculum or other stories and add my own poses to them. For example we would do adho mukha svanasana for a page about a house. I would try to find visuals and shuffle through the pictures while trying to read the book, demonstrate the pose, and assist my students with the pose. For this reason I wanted to create books that would allow me to better instruct in this way while reinforcing skills and topics that are relevant to the population that I teach.

The book attached is a short story that is similar to one my students would read. It reinforces our school wide Positive Behavior Intervention System (PBIS) theme, which is space. This book is a basis to build off of in which to include other topics and book sets. The book is simple and allows for comprehension questions such as 'wh' questions and sequential order. Most pages are paired with a yoga visual at the bottom

of the page. The pages have a fold line to differentiate based on student's needs. Some students may not have the visual attention for more than one picture so it can be folded.

Incorporated into the story is breathing techniques. I wanted students to see a character utilize breathing techniques and also use an excuse for them to do it as well. Along with the book I included comprehension questions for teachers to assess.

A lot of classrooms utilize yoga outside of instruction which is great. However, there is a lot of research that supports kinesthetic movement to teach content. Yoga is a great kinesthetic movement to use during instruction. It engages students and helps them build connections to content.

My students loved doing the story. It helps with their body awareness and attention. The pictures also help them do the poses correctly and I enjoy that I am not shuffling through picture visuals and book pages. After seeing how successful this was I want to create more books based on relevant topics in our classroom such as body awareness and social skills.

**Astronauts in Outer Space**  
**By: Katy Ames**



Adam is an astronaut.



Adam the astronaut is getting ready to go to outer-space.



First he needs to put his suit on.



Then, he puts his helmet on.



Next, he puts his boots on.



Adam gets on the ship.



3,2,1 he blasts off!



Adam sees the stars.



Adam sees the planets.



He loves outer space, but it can get scary sometimes.



He takes 3 deep breaths to help stay calm.



It is time for Adam to prepare for landing.



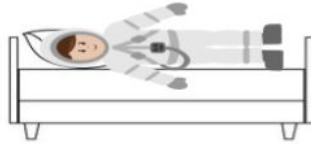
As he flies down the ship moves left and right.



Finally he lands.



He is happy to be home but is tired and ready for bed.



Corpse pose

Who is this story about?

Adam



John



Jessica



When Adam puts on his space gear, what does he put on first?

Helmet



Suit



Boots



What does Adam put on last?

Helmet



Suit



Boots





What does Adam see first in space?

Stars



Planets



## Credits

Yoga Clip Art- <http://www.teacherspayteacher.com/store/Artifex>

Space Clip Art- product of Winterpix Wonders

The Effects yoga exercises have on Academics in the Special Education Setting

Katy Ames

Olivet Nazarene University

Research Project Report

EDUC 696W131

Laurie Hoffman

3/21/18

Certification of Authorship: I certify that I am the author of this paper and that any assistance I received in its preparation is fully acknowledged and disclosed in the paper. I have also cited any sources from which I used data, ideas, or words, either quoted directly or paraphrased. I also certify that this paper was prepared by me specifically for this assignment.

Your Signature: \_\_\_\_ Katy Ames \_\_\_\_\_

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## **I. Introduction**

### **Background Information**

This research takes place at an elementary school in a suburb of Chicago, in a special education class consisting of six students, two assistants, and one teacher. Other related services such as a school social worker, speech pathologist, and occupational therapist are periodically in the room. The students include, five second-grade boys and one third-grade girl. The demographics in the classroom include African-American, Hispanic, and Caucasian students. Four of the students are diagnosed with autism, one is diagnosed with down's syndrome, and another student is diagnosed with emotional and behavioral disorder. The classrooms nearby consist of a similar k-1 program and pre-k programs. All programs utilize yoga in there classrooms outside of academics as a therapeutic movement break. The school has 492 students enrolled and 13.8% of the students have an IEP and 51.8% of the students have low income.

### **Purpose Statement**

The purpose of this research is to examine the effects yoga has on academics when integrated and used as a method of instruction. The need for this research stems from the needs of the students. Many of the students need support with communication, behavior, academics, body awareness, coordination, fine motor, gross motor, listening, and comprehension skills. In addition, these students often need instruction that is quick in pace to keep the student's attention yet slow enough in pace to allow the student a reasonable amount of time to process, and often consist of frequent breaks that involve movement and highly reinforcing/ motivating activities. This research will examine if integrating yoga as a

means into instruction, such as using a pose to illustrate a part of a story (boat pose for a boat) will increase the amount of attentive behaviors during instruction and increase the retention and performance of reading instruction. The intervention is also beneficial to student body awareness and physical activity, although these factors will not be researched in this study.

## **II. Research Questions**

1. How does integrating yoga thematically into reading instruction affect student attention during lessons within the 2nd-3rd grade self-contained classroom?
2. How does integrating yoga thematically into academic instruction affect students' comprehension skills during reading lessons within the 2nd-3rd grade self-contained setting?

## **III. Review of Literature**

To find out how yoga can affect students' academics and behavior, more information in regards to yoga interventions are needed. Kinesthetic learning is a topic that is a focus for this study, as it studies how movement can benefit learners, specifically kinesthetic learners. Kinesthetic learning studies indicate the benefits of movement throughout the learning process. The studies below discuss various subjects which relate to the research currently being done. These topics include effects of yoga in the classroom setting, kinesthetic learning advantages, and the effects of anxiety and sensory aversions within the classroom setting.

## **Body of Evidence**

## **The Effects of a Classroom-Based Yoga Intervention on Academic Achievement and Cognition**

This study is relevant because it examines the use of yoga in relation to academics. The study used a small sample size of suburban third grade students. For a 10 week period, students practiced yoga poses for 20 minutes twice a week in addition to daily breathing exercises and relaxation techniques. Students were given pre and post tests within the 10 week period to measure academic achievement. The data collected consisted of valid and reliable pre and post tests which measured students academic achievement. The results of pre and post academic assessments of two control groups were compared. The study did not find any conclusive results that showed student growth in academic achievement. The recommendations would be to continue the study over a longer period of time with more participants in different settings to find more conclusive results.

## **The Effects of Daily Yoga Practice on the Academic Engagement and Achievement of Middle School Students in a Special Education Classroom**

This study is relevant to the research being conducted as it provides insight on how daily yoga practice affect student academics in the class's curriculum. The study took place in a small group middle school special education setting. Students participated in daily yoga practice followed by a social studies class. Curriculum based assessments were given, including vocabulary, multiple choice, and map quizzes weekly to measure progress as well as a satisfaction survey. Frequency of engaging behavior was also tracked during all phases of the study. The results of baseline data 1, intervention 1, baseline 2, and intervention 2 of student engagement and academic achievement were compared. The study found encouraging results of

increased engagement during the second intervention. Due to varying participation the results for academic achievement were inconclusive. The recommendations would be to continue the study over a longer period of time with more participants in different settings to find more conclusive results.

### **Recognition-Based Physical Response to Facilitate EFL Learning**

The study consisted of 39 tenth grade students who participated in a Kinesthetic English Learning System (KELS). This study examined both academic improvement and motivation to learn. This intervention, while not specifically yoga, looks into the effects of movement while learning. This intervention is closely related to the research being done because it involves movement during instruction, opposed to before or after. The study analyzed an experimental group and a control group. Empirical research method and questionnaires were used to collect data. The study found the experimental group performed better on delayed tests. The study also found KELS to be good for a variety of learning styles. The recommendations would be to continue the study over a longer period of time with more participants in different settings to find more conclusive results.

### **The Relationship Between Intolerance of Uncertainty, Sensory Sensitivities, and Anxiety in Autistic and Typically Developing Children**

Typically student who have autism display anxiety and sensory sensitivities in multiple and various settings, including academic instruction. By looking at student's attentive behaviors in comparison of instruction when yoga is not present, this study can observe if yoga helps improve student attentiveness by decreasing anxiety. The study being referenced examines the relationship between anxiety, uncertainty and sensory sensitive for individuals with autism ages

six to 14. Parents of 64 autistic children were given surveys to assess their child's anxiety and social communication. Sensory profiles were completed for each participant. The study analyzed the anxiety levels caused by uncertainty and whether or not it increased sensory sensitivities. The study found that intolerance of uncertainty was associated with sensory sensitivities. The recommendations would be to add more interventions to include in the study and then continue for longer.

### **Getting on the Mat: Teachers and Students Engaging in Yoga Together**

The study shares observations and interactions of teaching yoga to a class alongside the student's teacher. It relates to the current research being conducted because yoga will be incorporated into the classroom more regularly. It can compare the results found about the positive advantages observed in the classroom. In the referenced study, one yoga instructor went to 3 different elementary schools to teach yoga to the class and teacher. Anecdotal data was taken on observations. The study analyzed the noticeable effects of yoga in the classroom. The study found that yoga had many positive effects on students and the classroom environment. Students reported to utilize breathing exercises before tests and teachers reported more positive attitudes of students throughout the week. The recommendations would be to increase assessments and types of data to further support these observations.

### **Summation**

The above studies demonstrate the need for more conclusive evidence linking the effects of yoga and academics. It illustrates how kinesthetic instruction is a useful approach for this. The above studies also help illustrate the level of anxiety for many individuals with autism and why



more strategies to provide meaningful instruction to these students while being proactive to address their physical needs is needed.

These studies reviewed are all different in nature, but pertinent to the research currently being conducted. All of the studies involving yoga examine the effects of yoga in the classroom, but when it is done separate from instruction. The difference in the current research is it looks at the effects of yoga during instruction when integrated thematically. Other studies look at kinesthetic instruction, which is movement during instruction. This study looks at the movement during instruction, but specifically yoga. Also, another study looks at sensory sensitive and anxiety of the autism population within school settings. This study is informative to the nature of the students while conducting the study.

All of these studies are interesting to note in relation to the current research. Kinesthetic learning research can help guide the interventions in relation to yoga. The yoga interventions can provide further insight as these interventions are proving unsuccessful. The study on anxiety and sensory sensitivities can also provide insight as yoga is a form of sensory integration and this intervention is new so it may evoke some feeling of uncertainty among students.

#### **IV. Research Plan**

##### **General Procedures**

To answer whether or not integrating yoga thematically into instruction helps students engage better during lessons, frequency data on student's engaging behaviors was collected. Behaviors tracked included participating in motor movements by doing the yoga poses the teacher demonstrates during the story and students engaging in lesson by responding to teacher verbally or nonverbally (device, gesture, sign). Lessons were

conducted in small groups of two to three students. Frequency was collected using tallies of opportunities to do a pose or respond to instruction. To answer if integrating yoga into reading lessons improves student comprehension, students were read a book and given a comprehension assessment. They were then read a book of a similar subject matter while yoga was thematically integrated and then given a reading assessment of the same format. Books that already have yoga poses integrated into the story were purchased online from [kidsyogastories.com](http://kidsyogastories.com). The stories were then used to create original comprehension assessments using picture supports for non-verbal/ non-readers. Other lessons used for yoga integrated reading instruction were pulled from Reading A-Z and Unique Learning System (ULS) and yoga sequences were added to the stories. Reading lessons without yoga integrated into them were pulled from Reading A-Z and ULS. All reading comprehension assessments were given in very similar format.

To obtain permission in the school the research is being conducted the building principle was consulted. He was given a permission slip detailing the research which he signed. Parent consent was also given via a permission slip.

### **Participants**

Students were assessed in small groups of two to three participants. Participants include students ages seven to nine within the special education setting. Students have disabilities including ASD, Down's syndrome, and Emotional Disturbance. All students come from a middle to low socioeconomic class. Participants range in diversity, two participants are Polish-American, one is Russian-American, two are hispanic, and one is African American. Data Collection Instruments

Research Questions	Data Source 1 (Pre-Assessment)	Data Source 2 (Post-Assessment)
<p><i>How does integrating yoga thematically into academic instruction affect student's attention during reading lessons?</i></p>	<p><i>Frequency data tracking student's engaging behaviors such as participating in motor movement and engaging in activities will be tracked during lessons with yoga integrated into the lesson.</i></p>	<p><i>Frequency data tracking student's engaging behaviors such as participating engaging in activities will be tracked while yoga is not integrated into the lesson.</i></p>
<p><i>How does integrating yoga thematically into academic instruction affect student's listening and comprehension skills during reading lessons?</i></p>	<p><i>Reading comprehension test will be given after lesson without yoga instruction integrated into the lesson.</i></p>	<p><i>Reading comprehension test will be given after yoga has been integrated into the lesson.</i></p>

**Timeline**

August	September	October/November	January	February	March
<i>Declare research topic, purpose statement, and research questions.</i>	<i>Begin to research topic, find research assessment tools, declare a research topic. Continue to research topic.</i>	<i>Start collecting pre-assessments. Create more reading lessons with yoga integrated into them. Begin collecting data on reading lessons with integrated yoga.</i>	<i>Start analyzing data and re-assessing adjustments.</i>	<i>Polish research presentation.</i>	<i>Edit and Polish Final Research Project.</i>

**I. Data Collection Process**

To answer if integrating yoga thematically into instruction helps students engage better during lessons, frequency data was collected using tally marks during lessons. This was done when students participated in a pose when initially asked or responded during

reading instruction (i.e. asked to point to a picture). Extra staff was utilized when possible for this part of the data collection process.

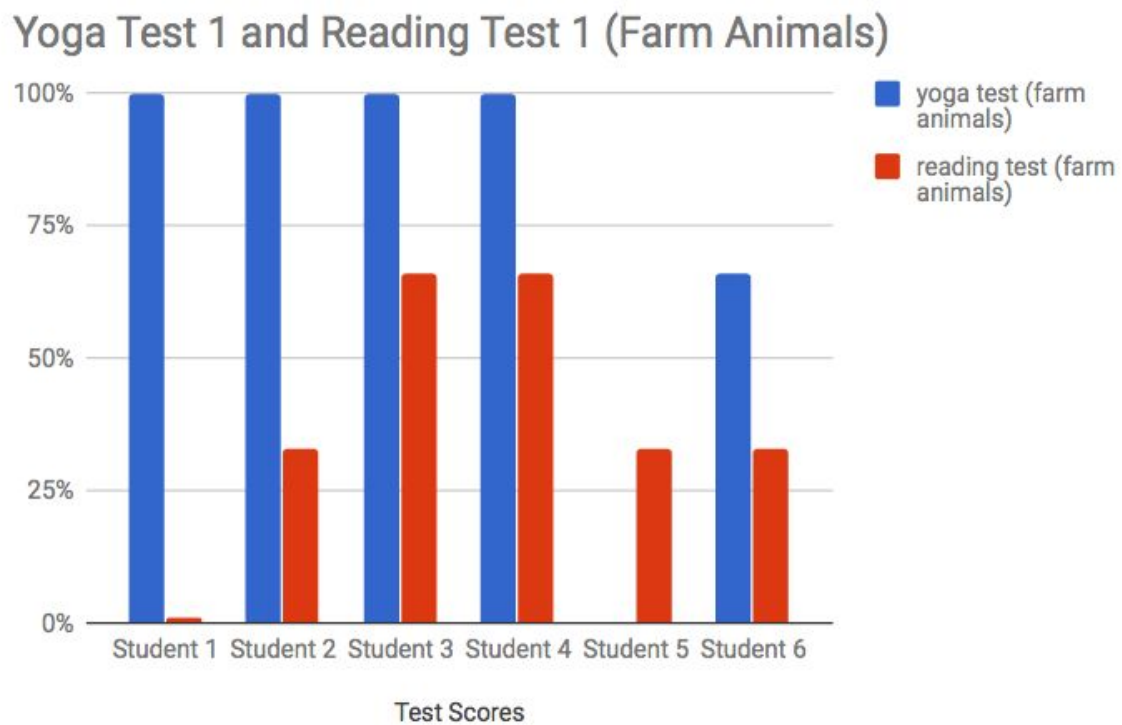
To determine if student's reading comprehension was affected by yoga integrated instruction reading comprehension assessments were given. The assessments were given after instruction with and without yoga integrated reading instruction. Results were compared in relation to subject areas. For instance, the two different farm books that were read during the study were compared in relation to the farm book instructed with yoga integration and the farm book instructed without yoga integration. The other two subject areas used in this study consisted of cold weather and community. These subject areas were instructed and assessed with similar format books and assessments. The total amount of instruction and assessments analyzed in data comparisons are six interventions and six assessments.

The themes consisted of farm animals, cold weather, and community. The stories were read in groups no larger than three students at a time. The students varied in ability level. Four students were seven and eight year old boys who are diagnosed with autism. One student is an eight year girl who is diagnosed with Down's Syndrome. Another student is an eight year old boy who is diagnosed with an emotional/ behavioral disorder. The students work in a highly structured classroom with language supports. Three out of the six students are non-verbal. Student assessments consisted of a question read aloud and a picture response with an array of three choices.

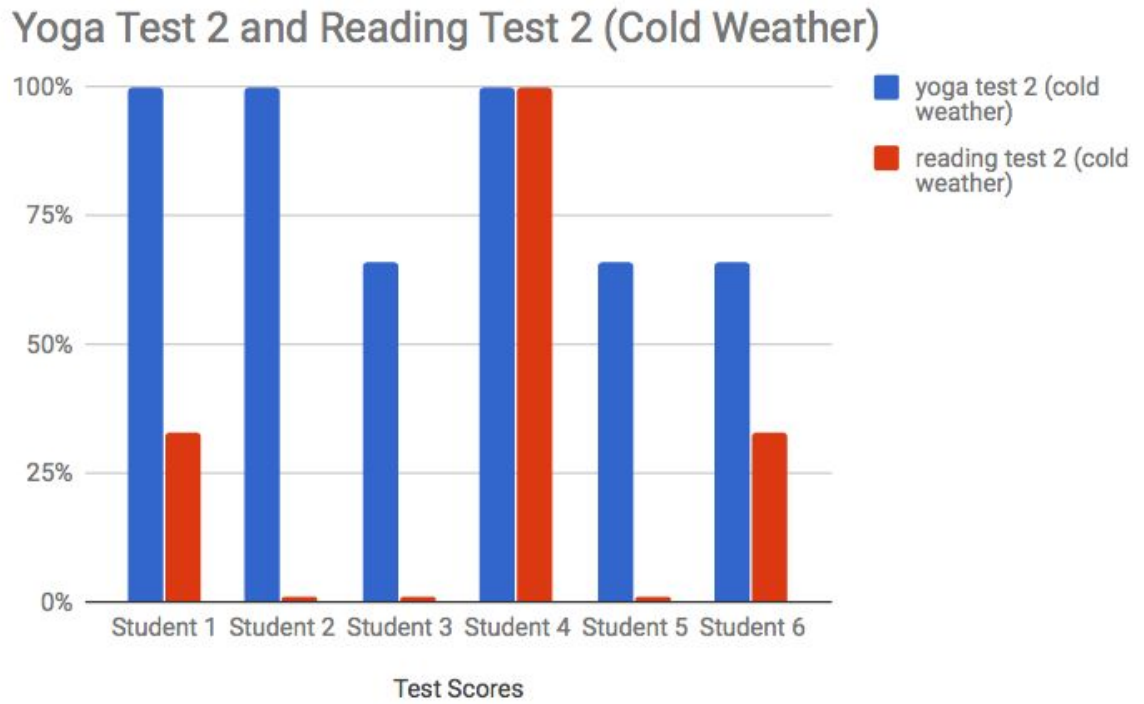
### **Data Analysis**

Tallies were collected and compared to analyze frequency data. . It illustrated how often students participated during instruction. This data will show what lessons produced what behaviors and are represented in a bar graph. Pre and post assessments were recorded after each lesson. The data for this was recorded and represented in a double bar graph to show the relation within each subject area.

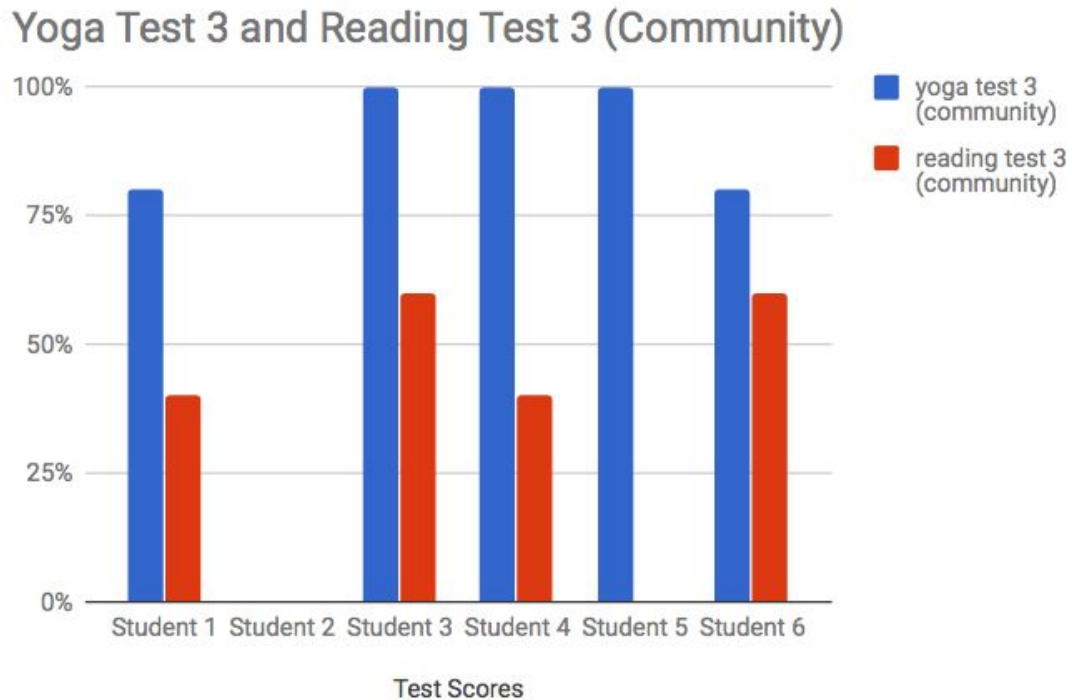
**Figure 1. Yoga Test 1 and Reading Test 1 (Farm Animals)**



**Figure 2. Yoga Test 2 and Reading Test 2 (Cold Weather).**



**Figure 3. Yoga Test 3 and Reading Test 3 (Community).**



The above figures show the relations between the yoga tests and reading tests. For all three theme or subject areas, students scored higher when presented the reading while doing yoga then they did without doing yoga. Please note one student five was not presented with the yoga reading in figure one due to behaviors. Also, student two was not tested in yoga or regular reading, as shown in figure 3, as they were out for an extended period of time after having surgery.

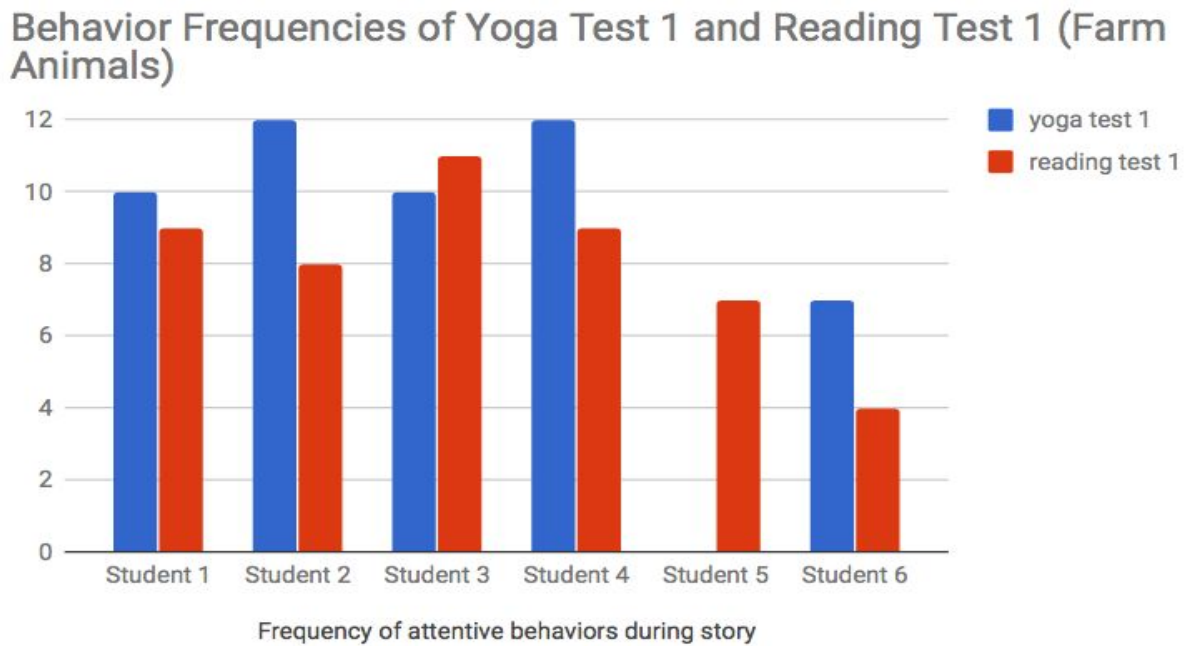
The results show that yoga integrated stories were beneficial to student comprehension skills. A study titled, *Getting on the Mat: Teachers and students engaging in yoga together,*



found many encouraging results about yoga in the classroom including more positive attitudes (Finnan, 2015).

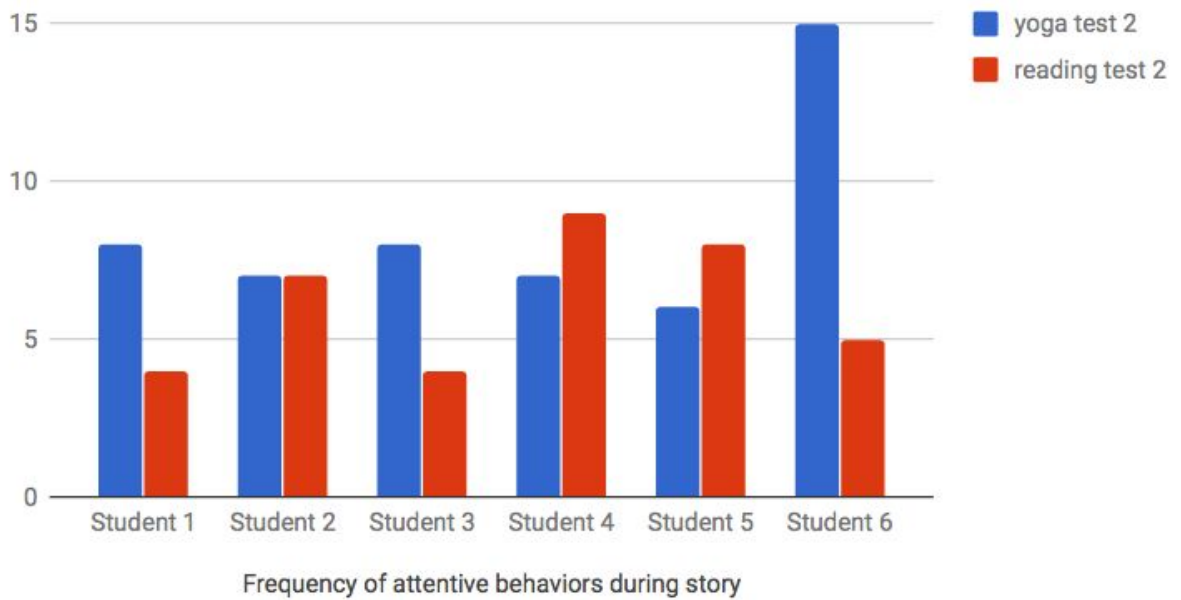
To answer the question, “How does integrating yoga thematically into reading instruction affect student attention during lessons?” attentive behaviors were tracked during readings. These attentive behaviors are defined as students participating in the yoga poses when prompted to, or participating by pointing or responding to other prompts during reading. The results are shown in the figures below.

**Figure 4. Behavior Frequencies of Yoga Test 1 and Reading Test 1 (Farm Animals).**



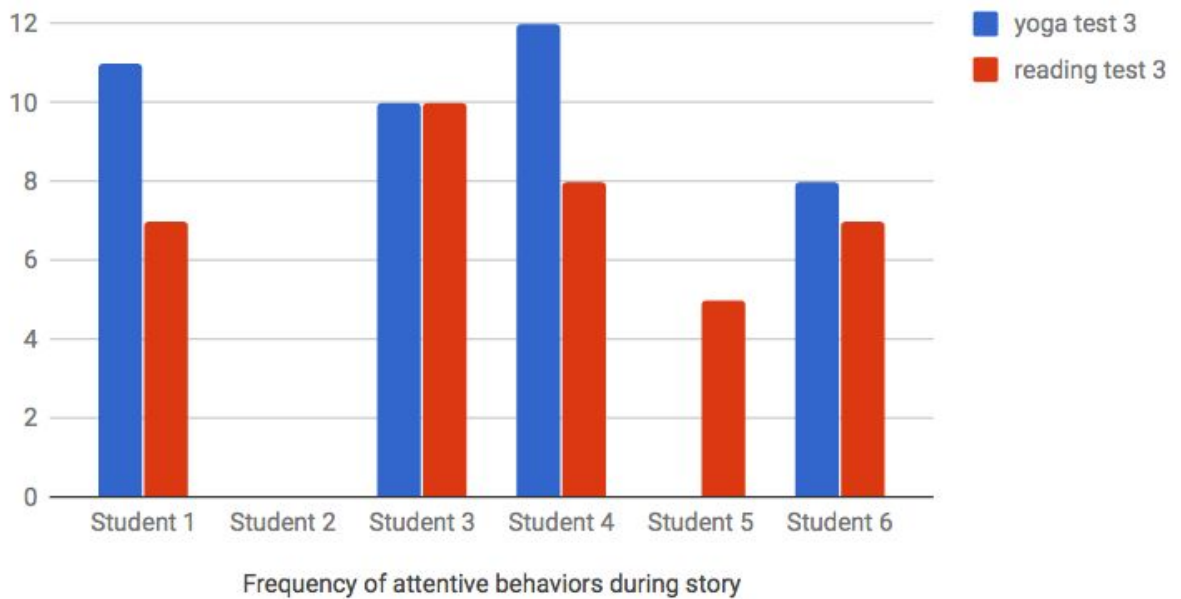
**Figure 5. Behavior Frequencies of Yoga Test 2 and Reading Test 2 (Cold Weather).**

### Behavior Frequencies of Yoga Test 2 and Reading Test 2 (Cold Weather).



**Figure 6. Behavior Frequencies of Yoga Test 3 and Reading Test 3 (Cold Weather).**

### Behavior Frequencies of Yoga Test 3 and Reading Test 3 (Community)



The above figures illustrate the relationship between attentive behaviors during stories utilizing yoga, and stories without. While on average, the data shows students to be more attentive during the stories that utilized yoga, some students were more attentive when given regular reading instruction. There are other factors to consider when interpreting this data, such as the length of the story and opportunities to participate. For instance, yoga story two was six pages long while reading story two was eight pages long. This could explain why two of the students showed more attentive behaviors during regular reading instruction as opposed to the one with yoga integrated. Other factors to consider include student body awareness, behavior, and rigidity for routine.

It is clear the students' comprehension benefited from the integration of yoga. Attentive behaviors during yoga integrated stories were higher than regular reading instruction for an average of three out of six trials or 50% of the time. These results are conclusive with other studies that have researched kinesthetic movement such as the one conducted by authors, Hwang, Shih, Yeh, Chou, & Zhao-Heng, which examines Kinesthetic English Learning System (KELS) and states how it is, "Good for a variety of learning styles" (Hwang et al., 2014).

## **I. Conclusions and Recommendations**

### **Conclusions**

Based on the research already done involving kinesthetic movement during instruction it was hypothesized that students would be more attentive and improve comprehension after yoga integrated reading instruction as opposed to reading instruction without yoga integration or kinesthetic movement.

Students on average showed more attentive behaviors during reading instruction with yoga incorporated, however these results were inconsistent and therefore inconclusive. It was also taken into consideration that frequency of attentive behaviors were recorded, however opportunities for attentive behaviors were not considered during research.

The results of this study show there was a clear link between the use of yoga during reading instruction and its effects on comprehension. Overall, all students scored higher after reading with yoga integrated into the story as opposed to reading instruction done without yoga or movement. On average, the students scored 50% better on comprehension assessments after reading a story that integrated yoga as opposed to a story that did not.

### **Recommendations**

Further research is needed and can be completed in this study. It is recommended that opportunities for attentive behaviors be counted in relation to attentive behaviors. This is an area that is needed, but more researchers and/or more resources are needed to make this area of research realistic and manageable. Adding on to this, students' inattentive behaviors could also be considered with further research. However, it should be kept in mind that some students have inattentive behaviors, such as not making eye contact, yet can still be paying attention as this is common for students who have autism. This is why inattentive behaviors were not considered in this study, but if expanding to other populations it may need to be considered.

It is also recommended to research this area with other groups. The general education population and English Language Learners were not included in the current study. This research could tell us if there are similar results within different populations.

Length of stories was also another factor that can vary results. Students were tested on different stories with similar content. It was difficult to find stories of the same content that were also the same amount of pages. Creating stories to be consistent could be one way to control this variable in future studies.

Based on evidence gathered, there are promising results that show stories that integrate yoga have an effect on student attention and comprehension. Expanding this study across different ages and populations would help us learn more about this topic.

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