The Effect of Kinesthetics on Student Engagement and Retention of Skills on Elementary

Students

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**ABSTRACT**

The purpose of this study was to determine the impact of kinesthetics on student engagement and retention of sight words. The participants in this study consisted of sixteen first grade students who served as their own controls. The participants were provided with sight word instruction and practice aligned with the Common Core State Standards as well as the local school system’s English Language Arts curriculum. The study was conducted over a period of one month with two different lists of words and a total of fourteen words. A group of seven words were taught using traditional methods and seven words taught incorporating. Kinesthetics. Sight word knowledge score was measured by word recognition and spelling accuracy. The mean sight words knowledge score under the kinesthetic condition (Mean=13.31, SD=1.08) was significantly higher than the mean sight word knowledge score under the traditional rote instruction condition (Mean=12.13, SD = 1.59) [t(15)=3.45, p=.004]. Implications, threat to validity, and ideas for future research are discussed.

**CHAPTER I**

**INTRODUCTION**

Learning how to read may be one of the most rewarding achievements a student will accomplish in his or her academic career but can also be one of the most challenging. According to the National Reading Panel, reading is an acquired skill that requires practice. When a reader is exposed to print and given the opportunity to practice reading, it is an important determinant in reading development. Print exposure may be particularly linked with phonetic decoding and sight word reading (Mano & Guerin 2018). Print awareness and letter naming skills have a strong connection to students spelling and word recognition, which will contribute to reading achievement over the years. Becoming a proficient reader will lead to academic and life successes in the future.

Reading may seem like it comes naturally to children, but it is a complex process of letter sounds, sound blends and patterns. As students learn to read, they learn letter sounds and the sounds associated with each letter of the alphabet. They then use this knowledge to decode unfamiliar words. Unfortunately, not all words follow the phonics rules. High-frequency words or sight words cannot be decoded using a student’s knowledge of phonic skills. Students must memorize these words in order to become a fluent reader. High-frequency words make up over half of the words in printed text, therefore if a student cannot read these words, they will not be able to read a text fluently and in turn will not be able to fully comprehend what it is they are reading. Traditionally, these words are taught with flashcards, reading in the context of a sentence, and other rote methods. While these methods may work with some types of learners, it doesn’t with all types of learners. Traditional methods of instruction for students with reading disabilities focus on decoding words if students are unable to memorize a word, but this is not effective for some high frequency words which cannot be decoded because they do not follow the rules of phonics. For words that need to be memorized traditional methods of instruction include flashcard instruction, but research has found that students, particularly those with reading disabilities, often do not generalize their learning of these words across contexts and do not recognize the words when they encounter the words in their reading (Skinner, Kindermann, & Furrer, 2009).

In addition, children today are bombarded with so much stimulus from technology that educators find it is extremely difficult to keep students engaged and motivated. Too much screen time too soon is the very thing impeding the development of the abilities that parents are so eager to foster through technology. The ability to focus, to concentrate, to lend attention, to sense other people’s attitudes and communicate with them, to build a large vocabulary are abilities being harmed (Margalit, 2016). Tablets and iPhones offer stimulus at their fingertips but hinders children’s ability to process stimulus simultaneously, therefore effecting their ability to maintain focus and attention. This technology hinders young brains to process the spoken word, visualize pictures and follow a story line. These devices do the thinking for them and their cognitive muscles become lazy.

Cognitive science is characterized by the study of mental processes. Studies have measured the effects of kinesthetics on children’s mental functioning. Researchers analyzed the impact of physical activity on brain function. Children enrolled in kindergarten through fifth grade who were exposed to physical activity consistently over a two- year period were found to have a positive effect on the standardized achievement test. The effects of physical activity had an even greater impact on the girls. Exercise training programs may prove to be simple, yet important, methods of enhancing aspects of children’s mental functioning that are central to cognitive and social development (Tomporowski, Davis, Miller & Naglieri, 2008).

Children have a natural desire to move and be actively involved due to billions of active brain neurons hungry for stimulation. Evidence shows that daily classroom-based physical activity increases on-task behavior. Inviting students to get out of their seats and experience the world through active engagement, educators can use music and movement opportunities that offer rich learning experiences (Foley, 2006).

As a first-grade teacher for several years, this researcher has noticed that students are becoming more disengaged and have difficulty attending to what is being taught. This researcher’s current class is somewhat immature, and it is necessary to try new ways to keep the students engaged and on task. Since this group is quite lively, this researcher has started incorporating movement into instruction in order to increase student engagement. This researcher wanted to conduct a study to learn if incorporating movement into daily instruction improves student learning.

**Statement of Problem**

The purpose of this study was to determine the impact of kinesthetic instructional approaches on the acquisition of high frequency words by first grade students.

**Hypothesis**

The null hypothesis was that there will be no significant difference in the mean sight word knowledge score of first grade students when taught using a traditional rote method as compared to a kinesthetic approach.

**Operational Definitions**

***High-frequency sight words*:**These are the most frequently words used in printed text. High frequency words account for over fifty percent of all text. The words in the current study are part of the school system’s list of words that are expected to be learned by the end of the first grade. Many of the high frequency words on the list do not follow phonetic spelling patterns, so they cannot be decoded or sounded out. Two lists of seven words from the first-grade high frequency word list was used in the study. The first list included the short and long sounds of “e”. The second group of words includes the short and long sounds of “i”.

***Traditional rote method*:** Rote memorization techniques were used. Activities included, rainbow writing the words, using flash cards, using the words in sentences and completing worksheets.

***Kinesthetic approach*:** The researcher defined kinesthetic as using movement in order to learn the words. Some examples of movement were dancing, marching, jumping, and role playing.

***Sight word knowledge score*:** This was the combined score from the Reading and Spelling Inventories that was based on the sum of the number of words read out loud and number of words spelled correctly.

**CHAPTER II**

**REVIEW OF THE LITERATURE**

This literature review discusses the engagement and retention of skills at the elementary school level. It also analyzes strategies to improve engagement in elementary students. The first section outlines engagement and its impact on student achievement. Section two discusses physical activity and its impact on engagement and cognitive development. Section three examines ways to incorporate movement into the classroom and its effect on student engagement. Section four looks specifically at effects of student achievement by incorporating movement in instruction.

**Engagement and Its Importance on Student Achievement**

Engagement is vital to student learning and achievement. Student engagement refers to students being actively involved in their learning tasks and activities. Despite the passage of time, the importance of engaging all students in their education continues to resonate strongly with families, students, educators, and researchers (Appleton, Christenson & Furlong, 2008). This engagement not only appears to affect school changes directly, but also seems to lead to improvement in academic achievement of students whose grades have been poor and lowering levels of student dissatisfaction and dropout rates (Hao, Yunhuo, & Zhou, 2018). Engaged students are portrayed as energized, enthusiastic, and focused. These conditions create an optimal condition for students to actually learn more. King’s study concluded that academic achievement was positively correlated with behavioral and emotional engagement and suggests that educators who are interested in improving students’ academic and well-being outcomes may do well to focus on the quality of students’ social relationships (King, 2015).

Classroom climate also factors into a student’s engagement and academic achievement. A positive classroom climate is typically evidenced by a high degree of teacher sensitivity, encouragement, and support along with clear expectations and effective behavioral management. Classroom climate can impact student achievement, motivation, well being, and in particular, engagement. Emotionally supportive environments may foster a sense of acceptance, belonging, and relatedness, which may in turn lead children to become more engaged (Hughes & Coplan, 2018). Improving classroom experiences has been linked with increased levels of attention. In addition, student engagement interventions have been linked with improved achievement and well being.

Another component vital to student achievement is the relationship between teacher and student. According to social–motivational theories, students will become engaged in schoolwork if their basic psychological needs for relatedness, competence, and autonomy are met. Teachers can fulfill these needs by respectively showing involvement (caring for and expressing interest in the student), providing structure (establishing clear rules and consequences), and supporting autonomy (giving students freedom to make their own choices). Teachers’ supportive behaviors affect students’ achievement through their impact on student engagement (Roorda, Jak, Zee, Oort & Koomen, 2017). If students feel emotionally secure, they will be better apt to perform academically. Emotional security, in turn, enables children’s exploration of the learning environment and engagement in academic activities, which will result in better academic performance.

**Physical Activity and Its Impact on Engagement and Cognitive Development**

Incorporating kinesthetics into learning can perpetuate engagement and positively effect cognitive development. A single component of the concept of engagement is active learning, which is the process of engaging students in the learning process through participation and reflection. Active engagement refers to the joint functioning of motivation, movement, conceptual knowledge, cognitive strategies, and social interactions in learning activities. Rather than passively receiving the information, the student combines academic content with physical movements and skills to enhance learning (Stevens-Smith, 2016). Researchers have found that the brain uses the same connections to move that are used to process learning in reading, writing, and math. The results provide insight into the connection between cognitive areas of the brain and how physical engagement can enhance learning connections. Physical engagement assists children in learning how to relate to others, adjust their muscles, and think abstractly. Through physical engagement, children develop a general mind-set of how-to string bits of information together to form solutions to problems and actually learn how to learn.

The NPAP Alliance says that less than half of those between the ages of 6 and 11—and less than 10 percent of adolescents—get a minimum of 60 minutes of moderate to vigorous physical activity at least five days per week. By the time children reach the age of 19, the average young person is as sedentary as a 60-year-old. Physical activity can have a hugely positive effect on students’ performance and behavior in the classroom *(*Hennick, 2017*).*

The structure of physical activity in schools also provides social benefits that could result in academic outcomes. Children who learn to cooperate, share, and abide by rules of group physical activities and those who learn to discover and test their physical abilities are likely to feel more connected to their school and community and want to challenge themselves (Taras, 2005).

Physical activity has positive influences on concentration, memory and classroom behavior. Data suggests that incorporating kinesthetics will improve cognitive function, pointing to a positive relationship between physical activity and intellectual performance. Physical activity can be added to the school curriculum by taking time from other subjects without risk of hindering student academic achievement (Erwin, Fedewa & Ahn, 2011).

**Ways to Incorporate Movement into the Classroom**

“Movement bumps up effort,” says Eric Jensen, author of *Teaching with the Brain in* *Mind*. “If you’ve been sitting down all day, there’s inertia. But if you get kids up and moving, it’s easier to get them raising their hands and working hard and asking questions” (Hennick, 2017). There are many ways to incorporate movement in the classroom.

Teachers can incorporate opportunities for movement integration throughout the day. “In my classroom, there’s movement all day,” states Fern Love, a kindergarten teacher in New Jersey. “We never sit down unless we dance our way down. And we don’t stand up unless we dance our way up. And we don’t pick up a pencil until we do the magic song and dance that allows your hand to hold a pencil!” In kindergarten, Love says, “everybody is a kinesthetic learner,” and so she seeks out as many ways as possible to incorporate movement into her instruction (Hennick, 2017, p.42).

In addition, there are many websites that use movement to teach academic skills. *Go Noodle* is a website that helps teachers and parents get kids moving with short interactive activities. Desk-side movement helps kids achieve more by keeping them engaged and motivated throughout the day. GoNoodle is designed with K-5 classrooms in mind. *Move to Learn* is a YouTube channel that teaches students dances that correspond with various learning objectives. When students move more, they learn more. *Move to Learn’s* free classroom videos helps students work out their energy so they can get their brains back on task. *Fit4Schools* offers a comprehensive program to get students active and healthy, and as part of its program it offers quick, 3-minute activities that are intended to be used in the classroom.

*Fuel Up to Play 60* is a national program designed to help kids get healthier. These activities help teachers introduce short activity breaks during lessons. Their website features a ton of healthy resources and teachers can download several lists of in-school activity breaks. *Just Dance Kids* is a dance-based [music game](https://en.wikipedia.org/wiki/Music_video_game) with an emphasis on songs that are popular with children and can be found on YouTube.

In addition to these websites, teachers can also incorporate movement opportunities in their lessons. If the skill being taught is how to use a number line in math, have students jump on a life size number line. In reading, students can bring a story to life by acting it out. In word work, students can spell sight words by incorporating movement. “Movement promotes camaraderie and classroom community,” Wimmer says of the exercises. “They’re having fun together, and they’re enjoying it. It’s okay to have time when you’re just moving around having fun. I don’t feel like every single second has to be content-driven, when they are working so hard for you the rest of the day” (Hennick, 2017, p.44).

Studies show that children become off-task as they sit through a prolonged period of classroom instruction, whereas a short bout of movement integration helps to maintain their on-task behavior. Goh, Fu, Brusseau, and Hannon (2018) studied 233 students from four elementary schools (11 classrooms) who participated in movement integration. The classroom teachers implemented the movement activities in the classrooms once a day for four weeks to monitor whether or not movement integration positively impacted students staying on task. The study concluded that implementing movement activities helps to reduce off-task behavior of students after prolonged seat-work in the classroom. Movement integration activities should be provided to students regularly throughout the school day.

Classroom teachers are critical stakeholders in the implementation of integrating movement into the classroom. Bringing teachers on board with movement initiatives is essential but can be difficult. It is critical to understand teachers’ perceptions about movement to increase movement in schools. Benes, Finn, Sullivan and Yan (2016) studied teachers’ perceptions of incorporating movement into their classrooms. Fifteen females and two males with an average of 11.3 years of teaching experience participated in the study. Participants discussed challenges in using movement in the classroom. Three major challenges were discussed: (1) getting students on board with movement in the classroom, (2) planning for movement, and (3) a lack of exposure on how to use movement in the classroom. Teachers who use movement described that it can be challenging to get students to “buy into” using movement during class. They felt that teachers have many demands placed on them and that integrating movement is another “thing” that they would have to try and “fit into” their curriculum. They also mentioned the barrier of “logistics,” including classroom management and space. Participants in this study overwhelmingly reported either experiencing positive benefits from using movement in their classroom or believing that using movement can lead to positive outcomes.

**Effects of Student Achievement by Incorporating Movement in Instruction**

Exercise may prove to be a simple, yet important, method of enhancing aspects of children’s mental functioning central to cognitive development (Tomporowski et al., 2008). Research that addresses the impact of physical activity on children’s physical health, mental function, and psychological well being is of critical importance. Physical movement that occurs in a problem-solving context is hypothesized to result in implicit cause-effect knowledge that is not derived from tasks that involve only routine mental operations. Children who are cognitively impaired and who were classified as disabled appeared to benefit even more than typically developing children. These findings further support the positive effects of physical activity on children with learning difficulties. Given the inherent academic struggles these children face, research reveals that physical activity should not be overlooked as an effective intervention in stimulating children’s learning (Erwin et al., 2011). For those children who struggle meeting mathematic and reading benchmarks, physical activity interventions appear to improve these children’s academic abilities tremendously.

Martin (2017) conducted a four-week pre/post- test study with 18 kindergartners to determine whether or not songs and movement help with sight word identification skill with a list of twenty Dolch words. Students were shown each word for one second to assess sight word automaticity as well as recognition. The students demonstrated growth in these three categories with results that show a significant increase in sight word identification, motivation, and engagement. It was concluded that the use of song and movement has a positive impact on students’ sight word acquisition and promotes an engaging way to develop sight word skills.

When time is allocated to physical activity and not solely to instruction, it should be viewed as enhancing, not impeding, children’s academic achievement (Erwin et al., 2011) Research findings suggest that exercise may actually enhance the development of specific types of mental processing known to be important for meeting challenges encountered both in academics and throughout the lifespan (Tomporowski et al., 2008).

**CHAPTER III**

**METHODS**

The purpose of this study was to determine the impact of kinesthetic instructional approaches on the acquisition of high frequency words by first grade students.

**Design**

This study had a quasi-experimental design in which subjects served as their own controls and took post-tests after two different experimental treatments. The independent variable was the type of instruction received, either traditional rote method or kinesthetic approach, and the dependent variable was the sight word knowledge score.

**Participants**

The study took place in a Title 1 school in a suburban area of the mid-Atlantic region.

Title 1 status reflects that there is a large proportion of students receiving free or reduced lunch. The students were a convenience sample of students from the researcher’s first grade classroom that are reading slightly below or on-grade level and are considered emergent readers. Among the 16 subjects, there were 9 girls and 7 boys: 6 African American students; 2 Hispanic students; and 6 Caucasian students. Two students were ELL (English Language Learners).

**Instrument**

Reading and Spelling Inventories were used to determine student acquisition of high frequency words. Each inventory was designed to assess just the words that had been taught from a specific word list; consequently, there were two different inventories since there were two different word lists. For each inventory, a sight word knowledge score was generated by adding the number of words identified correctly and the words spelled correctly. The inventories were designed by the researcher. There is no reliability or validity data.

**Procedure**

The study took place over the course of four weeks. During word work time, the students were instructed on two, comparable sets of 7 words from the first-grade high frequency word list. (Please see Appendix A). The words were selected from each list based on a master list of words provided by the school system.

The first list includes the short and long sounds of “e”. The second group of words includes the short and long sounds of “i” The first list of words, the words with the “e” sounds were taught during the first two weeks of the study using a kinesthetic approach. Every day of the week students engaged in different kinesthetic activities. On Monday, students were introduced to the words and played “Word Wall Spinner”. A student was chosen to spin the virtual color wheel spinner on the whiteboard screen, each color on the wheel is linked to an exercise. The students did the exercise while spelling the word. Students did an exercise for each word. For instance, if the spinner landed on orange, students had to do toe touches as they spelled the word. On Tuesday, a student was selected to choose an exercise for the class to do for each word. On Wednesday, students spelled the words engaging in exercises using Word Wall Chant cards. If the karate chop card was drawn, the students stood up, got into our best karate stance, and then chopped as the students said each letter.  Students repeated each chant 3 times before we picked a new card. On Thursday, students made a circle and spelled the words tossing a ball to another student as they spelled the words. On Friday, students practiced spelling their words playing “Word Wall Spinner” again. This routine was repeated during the second week. At the end of the second week, the students took the Reading and Spelling Inventory based on the instructed list.

During the third week, students received a high frequency word list that included words that have the short and long sounds of “i” and were taught using the traditional approach. Students engaged in traditional word work activities involving no physical activity. On Monday, students received their words and had to cut and sort the words with similar sound patterns, then glued them into their word work book. On Tuesday, students created and wrote their words in a sentence. On Wednesday, students picked three different colored crayons and rainbow wrote their words. On Thursday, students played Kaboom, words were written on wooden popsicle sticks, each student pulled out a stick and read the word, if they got it correct, they could keep the stick if not it went back in the pot. If someone pulled out the Kaboom stick they lost all their sticks. On Friday, students played a board game featuring the sounds of “i”.

During the fourth week, students completed worksheets containing the sounds of “i” on Monday. On Tuesday, students played Kaboom again. On Wednesday, students read simplistic books containing the sound pattern. On Thursday, students played the board game again. At the end of the fourth week, students completed the Reading and Spelling Inventory based on the second list.

If students missed instruction due to absence, the students received additional instruction to make up for the sessions missed at the end of each two-week period.

The mean sight word knowledge scores from lists learned under the kinesthetic approach and the traditional rote method were compared using a non-independent samples *t*-test.

**CHAPTER IV**

**RESULTS**

The purpose of this study was to determine the impact of kinesthetic instructional approaches on the acquisition of high frequency words by first grade students. Students were taught two lists of first grade high frequency words of comparable difficulty using either a kinesthetic or traditional approach. The words in the current study are part of the school system’s list of words that are expected to be learned by the end of the first grade. Many of the high frequency words on the list do not follow phonetic spelling patterns, so they cannot be decoded or sounded out.

A non-independent samples *t-*test was conducted with the independent variable being the type of instruction—kinesthetic or traditional. The dependent variable was the mean sight word knowledge score.

The mean sight word knowledge score under the kinesthetic condition (Mean = 13.31, SD = 1.08) was significantly higher than the mean sight word knowledge score under the traditional rote instruction condition (Mean = 12.13, SD = 1.59) [t (15) = 3.45, p = .004]. Consequently, the null hypothesis that there will be no significant difference in the mean sight word knowledge score of first grade students when taught using a traditional rote method as compared to a kinesthetic approach was rejected.

**Table 1**.

**Means, Standard Deviations, and *t*-Statistic for Sight Word Knowledge Scores Under Kinesthetic and Traditional Rote Instruction Conditions**

|  |  |  |  |
| --- | --- | --- | --- |
| **Condition** | **Mean** | **SD** | ***t-*statistic** |
| **Kinesthetic** | 13.31 | 1.08 | 3.45\* |
| **Traditional Rote** | 12.13 | 1.59 |  |

N = 16

\* Significant at p < .01

**CHAPTER V**

**DISCUSSION**

The purpose of this study was to determine the impact of kinesthetic instructional approaches on the acquisition of high frequency words by first grade students. The researcher focused on students in the reading class and determined the null hypothesis, that there will be no significant difference in the mean sight word knowledge score of first grade students when taught using a traditional rote method as compared to a kinesthetic approach was rejected. The students were more successful when kinesthetic activities were used to teach word wall words.

**Implications of the Results**

The results of the study indicate many implications for student learning. Students should have kinesthetic and hands-on activities integrated into their daily word study activities due to increased engagement and attention span. In addition, students may benefit from taking part in kinesthetic word study programs, as it is an active word study activity that may assist in the development of phonological knowledge which can be transferred into their independent writing in all academic areas. Implementing kinesthetics can be done in any academic area. It does not require a lot of time or added expense and can be used in conjunction with traditional teaching methods as well. This researcher discovered that the use of controlled movement contributed to better behavior during the lesson. These implications became apparent from the findings of this research study.

If students are learning in the way that works best for them, they are engaged and can increase their learning significantly. The instructor’s role is to facilitate learning by establishing a positive climate, clarifying the purpose for learning, supplying necessary resources, and maintaining a balanced environment (Ivey, 2000). Since sight word instruction is key for early literacy skills, making sure students are engaged and motivated is important in order for students to be successful. Engaged students are portrayed as energized, enthusiastic, and focused. These conditions create an optimal condition for students to learn more (King, 2015).

Teachers of both special and general education students need to be able to employ a variety of strategies and approaches to teach phonological awareness and phonics. Kinesthetic/tactile methods may supplement and reinforce phonological awareness material covered in regular and special education classrooms (Rule et.al, 2006).

**Theoretical Implications**

Due to the complexity of the English language with the use of a letter system and the sometimes-complex association between letters and sounds, the need for purposeful instructional methods in primary grades is important. In order for the purposeful instruction to be maximally effective, it is important that students are engaged in instruction. The results of the current study in which the students achieved more when they were more engaged are supported with the theories about the importance of improving student engagement to increase achievement (Appleton et al., 2008).

Research has shown that incorporating kinesthetics into learning not only engages students but positively influences cognitive development. If students are actively engaged, they are learning through participation and reflection. Rather than passively receiving the information, the student combines academic content with physical movements and skills to enhance learning (Stevens-Smith, 2016).

**Threats to Validity**

This study contained some threats to validity. A convenience sample of sixteen students were used in the study. Due to the small sample size, the statistical power was limited. Although the results were positive, the results may have been more significant if there was a larger sample size.

Within the sample that was used, all students were in the average to below average reading group. There was not much diversity within the sample, leaving the results based on a relatively small population of students. The results cannot be generalized to all first grade students, such as those reading above grade level. Children who are naturally adept at word acquisition are less likely to need this type of intervention. This is a threat to external validity.

Another threat to the validity was due the fact that there was no control group. There was no way of knowing if the results were impacted by the incorporation of kinesthetics or the difficulty level of the word list. Also, the fact that there was only one word list used under each condition, compounds the problem. is that fact that there was only one-word list under each condition.

Using a convenience sample also eliminated random assignment. Using an entire reading class also eliminated the possibility of a control group. Lack of random assignment and lack of a control group leads to risks such as history and maturation.

When conducting the study, this researcher taught using either only kinesthetics or traditional methods and not a combination of both. During the weeks, that the words were taught traditionally, the students noticed and missed the kinesthetic activities. In addition, there may have been some carryover in word identification skills learned during the kinesthetic lessons that impacted performance during the traditional lesson. This is multiple-treatment interference which is a threat to external validity.

**Connections to the Literature**

The results of this study are consistent with findings with other studies. In a study by Rule (et al., (2006), the researchers found that the students participating in the kinesthetic or tactile groups experienced greater gains in phonological knowledge as compared to those students who did not take part in the kinesthetic activities.

Research has demonstrated the critical role of both behavioral and affective components of high rates of student engagement as a predictor of academic performance (Appleton et al., 2008). In the current study, the students’ increased engagement during the kinesthetic instruction is consistent with that body of research.

The current results are also consistent with the literature about the specific benefits of movement on learning. Brain scans show that children learn best when they are actually moving and learning at the same time. Researchers found that movement stimulates the necessary neurons and electrical wiring that facilitates the child’s ability to absorb information. Although the current study did not include any brain imaging or neurological measures, the results are consistent with the finding that brains learn more while active.

In addition, students demonstrated a significant increase in motivation and engagement while learning sight words through the use of song and movement. Like Martin (2017), the students in the current research showed an excitement about learning and students were often observed repeating words using movements and chants as they worked. Over the course of the study, students seemed to thoroughly enjoy themselves as they moved. Consistent with the findings of Hennick (2017), students were eager and willing to participate in sight word instruction.

Learning by doing is imperative to improving a child’s ability to take in data and utilize that data in effective ways (Stevens-Smith, 2016). This current study relates to the literature in the fact that the analysis of the data collected shows a positive impact on sight word identification when movement is used to meet students at their varying intelligences to optimize learning.

**Implications for Future Research**

Implications for future research would be to address the limitations set forth from this study. A larger sample determined by random assignment would help researchers understand if the benefits from teaching word study using kinesthetics is impactful. Future research might use students with different reading abilities to determine if incorporating kinesthetics is an effective approach to improving all types of students’ acquisition of high frequency words. Research could specifically study the impact of specifically linking physical movement to the idea or sound being learned (i.e., karate chop for the sound of “k”) versus less specific physical activity. Research could also help to identify if there was any impact on retention. Research could also break down the impact on reading and spelling. Further research could be implemented to see what impact movement might have in other content areas as well.

**Summary**

This study provided evidence that teaching sight words using kinesthetics had a direct impact on student’s engagement and acquisition of high frequency words. When used consistently and appropriately, the physical and tactile approach to teaching word feature knowledge can impact student engagement and understanding of certain phonological skills. One notable observation from this study was the relationship between the kinesthetic instructional approach and increased level of engagement. Mastering high frequencywords enables students to readfluently and focus their attention on making sense of what they are reading and serves as a solid foundation to be able to read more complex texts. Research findings suggest that systematic exercise may actually enhance the development of specific types of mental processing known to be important for meeting challenges encountered both in academics and throughout the lifespan (Tomporowski et. al, 2008). By adding kinesthetic methods to reading instruction, teachers may help young students develop the critical early reading skills that will prepare them for future academic life successes.

**REFERENCES**

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct.*Psychology in the Schools, 45*(5), 369-386. doi:10.1002/pits.20303

Benes, S., Finn, K. E., Sullivan, E. C., & Yan, Z. (2016). Teachers' perceptions of using movement in the classroom.*Physical Educator, 73*(1), 110-135. doi://dx.doi.org.goucher.idm.oclc.org/10.18666/TPE-2016-V73-I1-5316

Cummings, K. D., Dewey, E. N., Latimer, R. J., & Good, R. H.,III. (2011). Pathways to word reading and decoding: The roles of automaticity and accuracy.*School Psychology Review, 40*(2), 284-295. Retrieved from <https://goucher.idm.oclc.org/login?url=https://search-proquest-com.goucher.idm.oclc.org/docview/878143959?accountid=11164>

Erwin, Fedewa, A. L., & Ahn, S. (2011). The effects of physical activity and physical fitness on children's achievement and cognitive outcomes: A meta-analysis.*Research Quarterly for Exercise and Sport, 82*(3), 521-35. doi://dx.doi.org.goucher.idm.oclc.org/10.1080/02701367.2011.10599785

Foley, M. B. (2006). The music, movement, and learning connection: A review.*Childhood Education, 82*(3), 175-17 Retrieved from: [https://goucher.idm.oclc.org/login?url=https://search- proquest-com.goucher.idm.oclc.org/docview/210406405?accountid=11164](https://goucher.idm.oclc.org/login?url=https://search-%20%20proquest-com.goucher.idm.oclc.org/docview/210406405?accountid=11164)

Goh, T. L., Fu, Y., Brusseau, T., & Hannon, J. (2018). On-task behavior of elementary students during movement integration.*Journal of Physical Education and Sport, 18*(1), 103-106. doi://dx.doi.org.goucher.idm.oclc.org/10.7752/jpes.2018.01013

Hao, L. E., Yunhuo, C. U. I., & Zhou, W. (2018). Relationships between student engagement and academic achievement: A meta-analysis.*Social Behavior & Personality: An International Journal, 46*(3), 517-528. doi:10.2224/sbp.7054

Hennick, C. (2017). The motion quotient: How teachers are transforming classroom instruction with movement--and why it matters for brain development.*Scholastic Teacher, 127*(1), 42-44. Retrieved from: <https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=124743848&site=ehost-live&scope=site>

Hughes, K., & Coplan, R. J. (2018). Why classroom climate matters for children high in anxious solitude: A study of differential susceptibility.*School Psychology Quarterly, 33*(1), 94-102. doi:10.1037/spq0000201

Ivey, G. (2000). Redesigning reading instruction.*Educational Leadership, 58*(1), 42-45. Retrieved from:

<https://goucher.idm.oclc.org/login?url=https://search-> proquest.com.goucher.idm.oclc.org/docview/224852544?accountid=11164

King, R. B. (2015). Sense of relatedness boosts engagement, achievement, and well-being: A latent growth model study.*Contemporary Educational Psychology, 42*, 26-38. doi://dx.doi.org.goucher.idm.oclc.org/10.1016/j.cedpsych.2015.04.002

Mano, Q. R., & Guerin, J. M. (2018). Direct and indirect effects of print exposure on silent reading fluency.*Reading and Writing, 31*(2), 483-502. doi://dx.doi.org.goucher.idm.oclc.org/10.1007/s11145-017-9794-5

Margalit, L. (2016). What screen time can really do to kids' brains. Retrieved from: <https://www.psychologytoday.com/us/blog/behind-online-behavior/201604/what-screen-time-can-really->do-kids-brains

Martin, Katy (2017). The impact of song and movement on kindergarten sight word acquisition. Theses and Dissertations. 2489. <https://rdw.rowan.edu/etd/2489>

Roorda, D. L., Jak, S., Zee, M., Oort, F. J., & Koomen, H. M. Y. (2017). Affective teacher-student relationships and students' engagement and achievement: A meta-analytic update and test of the mediating role of engagement.*School Psychology Review, 46*(3), 239-261. doi:10.17105/SPR-2017-0035.V46-3

Rule, A. C., Dockstader, C. J., & Stewart, R. A. (2006). Hands-on and kinesthetic activities for teaching phonological awareness. *Early Childhood Education Journal, 34*(3), 195-201. doi://dx.doi.org.goucher.idm.oclc.org/10.1007/s10643-006-0130-y

Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom.*Educational and Psychological Measurement, 69*(3), 493. Retrieved from: proquest.com.goucher.idm.oclc.org/docview/221534819?accountid=11164

Stevens-Smith, D. (2016). Active bodies/active brains: The relationship between physical engagement and children's brain development.*Physical Educator, 73*(4), 719-732. doi:10.18666/TPE-2016-V73-I4-6447

Stevens-Smith, D. (2004). Movement and learning: A valuable connection.*Strategies, 18*(1), 10-11. Retrieved from: [https://goucher.idm.oclc.org/login?url=https://search-proquest-om.goucher.idm.oclc.org/docview/214569540?accountid=11164](https://goucher.idm.oclc.org/login?url=https://search-proquest-com.goucher.idm.oclc.org/docview/214569540?accountid=11164)

Taras, H. (2005). Physical activity and student performance at school.*The Journal of School Health, 75*(6), 214-8. doi://dx.doi.org.goucher.idm.oclc.org/10.1111/j.1746-1561.2005.00026.x

Tomporowski, P. D., Davis, C. L., Miller, P. H., & Naglieri, J. A. (2008). Exercise and children's intelligence, cognition, and academic achievement.*Educational Psychology Review, 20*(2), 111-131. doi://dx.doi.org.goucher.idm.oclc.org/10.1007/s10648-007-9057-0

**Appendix A**

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| --- | --- |
| Sounds of “e” Word List  (kinesthetic method) | Sounds of “i” Word List  (traditional method) |
| every | kind |
| end | give |
| need | into |
| sleep | if |
| men | sit |
| let | ride |
| tell | live |