

The Effect of Kinesthetic Learning Strategies on the Engagement of Middle School Students

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Abstract

The purpose of this study was to determine if the implementation of kinesthetic learning strategies influenced the engagement of students in an eighth grade English Language Arts class. This study used a quasi-experimental pre/post-test design to determine how kinesthetic learning strategies affect student engagement. The “Middle School Survey of Student Engagement,” developed by the researcher, was used in this study. This instrument was based on the “National Survey of Student Engagement.” Although three areas of student engagement showed significant differences, the other five areas of student engagement displayed no differences. The threats to validity in this study demonstrate that improvements could be made in order to better determine the actual effect of kinesthetic learning strategies on student engagement. Creating more student-centered and differentiated learning opportunities is intended to provide students with more accessibility and ownership in their learning experiences; therefore, future studies and instructional practices should include the implementation of kinesthetic learning strategies for the purpose of analyzing and exploring their effect on student engagement.

CHAPTER I

INTRODUCTION

The active and consistent engagement of students plays a key role in providing meaningful and impactful learning experiences. When students are not consistently engaged in the classroom, they may miss out on the experience of making the necessary associations and gathering the important skills and knowledge related to the content being delivered by the instructor.

Overview

While most students regularly complete their learning tasks and assignments, they tend to perceive their learning experience as artificial or disconnected from their needs. Learners demonstrate the ability and willingness to be actively involved when they perceive learning experiences to be within their control, at their level of competency, and valuable to their own lives (Summers, 2008). Students are empowered to become more engaged learners and put forth more effort when they are able to make meaningful connections and take ownership of their learning. When students experience instructional activities involving purposeful movement, they are provided with a variety of opportunities to make accessible connections to the content and to actively participate in the learning.

As an eighth grade English Language Arts instructor, the researcher has observed students' lack of participation in classroom environments that provide little or no opportunities for purposeful movement. The researcher has also recognized students expressing discontent toward learning content and ideas through note-taking and reading activities that involve little or no movement throughout the school day. When students express their discontent toward learning activities that they perceive to be disconnected from their lives and boring time-

consuming tasks, they put little or no effort into increasing their skills and knowledge related to the content. According to Block, Parris, and Whiteley (2008), as the result of creating passive learners in the primary grades and beyond, the 2005 National Assessment of Educational progress indicated that 69% of fourth graders read below the “proficient” level. Also, Block et al. (2008) explained that many current teachers are becoming the sole dictators of interpretation and many current students are becoming passive learners. The researcher has experienced students that refuse to participate and/or complete learning activities and assignments when they feel that they have no control over their instructional experience. Cawthorn, Dawson and Ihorn (2011) explain that when there is a lack of engagement, students do not experience the significance of learning or a connection to the material provided by the instructor. Students are not retaining the significant content and they are not making connections to their learning when they are not actively engaged in the classroom. This affects the students’ abilities to retain and retrieve key information from their learning. A lack of students’ engagement creates a roadblock for increasing their academic skills that are necessary for successful college and career readiness experiences. When students are disengaged with the learning in the classroom, they do not absorb the key concepts and skills needed for success on related assessments, real world experiences and future academic opportunities.

Statement of Problem

Instructors are provided with a variety of professional development opportunities related to differentiating instruction in order to make it more engaging for the learner. With new national teaching standards and new evaluative criteria for teachers, there is a major instructional shift toward providing more student-centered learning opportunities. Li, Lee, & Solmon (2007) described how ineffective teaching practices can influence students’ motivation to engage with

the instructional activities in the classroom. Creating more student-centered learning opportunities is intended to provide students with more accessibility and ownership in their learning experiences. In this study, the researcher explored the affects that implementing drama-based kinesthetic learning activities, as a student-centered differentiation strategy, has on student engagement.

Hypothesis

This study hypothesizes that there will be no change in student engagement as a result of the implementation of kinesthetic learning strategies in an eighth grade English Language Arts classroom.

Operational Definitions

For the purpose of this study, **kinesthetic learning strategies** comprised the independent variable, which was operationally defined as drama-based instructional activities. Students created and performed theatrical scenes related to their readings for the class. The drama-based instructional activities also included students' creation of tableaux vivants based on various scenes from their readings.

Student engagement was the dependent variable and it was operationalized via questions adapted from the "National Survey of Student Engagement" (Kuh, Hayek, Carini, Oimet, Gonyea, and Kennedy, 2011). Student perceptions of the frequency in which they participate in engaging activities and engagement behaviors were measured in the survey.

CHAPTER II

REVIEW OF THE LITERATURE

This literature review discusses the engagement of students at the middle school level. It also explores instructional strategies related to improving the engagement of middle school students. The first section describes student engagement and explains how to recognize it in the classroom. The second section explains the importance of increasing student engagement. Section three explores the causes of inadequate student engagement. The fourth section examines differentiated strategies and approaches aimed at increasing student engagement. The final section explains kinesthetic learning interventions that are intended to improve student engagement.

Defining and Recognizing Student Engagement

According to Cawthorn et al. (2011), student engagement can be identified and recognized as active participation and on-task behavior in the classroom. Engagement takes place when students' experience the significance of learning or a connection to the material provided by the instructor. Student engagement can also be observed through attentive body language, physical movement, verbal interactions and the completion of instructional products.

Student motivation in education can assist in explaining how students become actively engaged. Student engagement occurs when students are influenced by two major motivational beliefs: control/competence and value. Control/competence beliefs can be described as students' perceptions of their ability to perform and/or accomplish a task. Value beliefs are based on the reasons why an individual would want to be actively involved in learning (Summers, 2008). It is important to recognize student perceptions of control/competence and value beliefs in order to gauge their abilities to be actively engaged in the classroom.

Strahan (2008) explains engagement as the development of academic momentum where students perform academic tasks and express a sense of progress. Academic momentum can be observed when students contribute to the learning community individually and collaboratively. According to Strahan (2008), students are actively engaged when they cooperate with others, assess their own work, seek guidance from their instructor and take academic risks within the learning environment. The active engagement of students includes their written, verbal or physical contributions to the learning community.

The Importance of Increasing Student Engagement

When student engagement is increased, there is improvement in student behavior, advancement in learning outcomes, and development in respectful conduct. The self-efficacy of teachers is also improved when there is an increase in student engagement (Cawthorn et al., 2011). According to Summers (2008), increased student engagement accompanies positive student perceptions about learning. Increasing student engagement can improve the instructional environment for teachers and students. Teachers and students experience positive and productive academic interactions when there are high levels of student engagement.

Causes of Low Student Engagement

Li et al. (2007) explain that student perceptions of task difficulty and self-perceptions of ability affect engagement. When students perceive a task as being overly difficult they develop lower self-efficacy and become less engaged. Ineffective teaching practices and behaviors can influence students' perceptions and reduce students' willingness to engage in learning tasks. The self-efficacy of students has a significant impact on their engagement.

Students can develop reluctant attitudes toward learning for a variety of reasons. Students develop reluctant attitudes when they are unaware of how to set goals for themselves,

use prior knowledge, or consider different strategies when faced with an academic challenge. Students are also reluctant to engage in learning activities when they lack confidence and doubt their ability to be successful. Learners become less engaged when they do not learn how to effectively think about their thoughts (metacognition). Students become more reluctant toward learning when they do not understand how to make effective choices about approaching tasks and engaging in learning (Strahan, 2008).

Responsive Differentiated Strategies to Increase Student Engagement

Student engagement can be increased through the implementation of a variety of responsive differentiated instructional strategies. According to Strahan (2008), student achievement and engagement tend to increase when there is instructional support that provides a variety of strategies for completing academic tasks. Students become more engaged when teachers develop warm, supportive relationships by showing a deep knowledge of each individual learner. Instructors can promote engagement by creating a climate of shared responsibility, teaching explicit strategies for completing tasks, and developing differentiated activities that link inquiry, collaboration, and authentic experiences.

When students are taught based on their ability and preferred ways of learning, there is increased student engagement. Students tend to engage more with learning when teachers consider the unique type of intelligence that each student has instead of simply questioning their aptitude. Teachers are responsive to a variety of learners and increase student engagement when they provide differentiated instruction that meets the needs of students according to their type of learning style and intelligence (Douglas, Burton, & Reese-Durham, 2008).

Lister (2005) explains how learning-style responsive instruction, including tactual and kinesthetic activities, provides effective differentiated learning to increase students' engagement.

Student attitudes tend to be more positive when they experience learning-style responsive instruction. The positive attitudes of students can contribute to increased student engagement.

As reported by Rayneri, Gerber, and Wiley (2006), students are more likely to be motivated and engaged when they experience hands-on instructional activities that deal with real-world problems. Students are more inclined to engage in learning when instruction, particularly kinesthetic and tactile learning activities, is differentiated according to the preference, characteristics and needs of learners. In order for students to reach their fullest academic engagement potential, instruction should respond to their needs and encourage their thinking.

Teachers can encourage engagement by identifying students' strengths, by tapping into students' interests, and by extending students' thinking. Instructors can effectively increase engagement when they implement responsive instruction by embracing individual differences, learning more about students as unique learners and structuring activities in ways that assist students in establishing associations with new information (Strahan, Kronenberg, Burgner, Doherty, & Hedt, 2012).

Kinesthetic Strategies for Improving Student Engagement

The implementation of kinesthetic learning strategies is aimed at promoting and increasing student engagement. Block et al. (2008) have examined the implementation of comprehension process motions, a kinesthetic learning strategy. Comprehension process motions involve hand placements and movements that visually and physically represent abstract comprehension processes such as identifying main ideas, inferring, predicting, and clarifying. Comprehension process motions can be applied to instructional activities in order to promote higher levels of student engagement. Students learn comprehension processes and begin to

initiate them without teacher prompting. Each unique mental process used to comprehend a text is related to a kinesthetic movement. Students could gain more confidence in their academic experiences by learning, practicing, and demonstrating how comprehension processes work, when and why to use them, and how to use them independently. The use of unique motions in the classroom can assist in creating mental representations for abstract concepts. When comprehension process motions are utilized in the classroom, students are asked to signal the comprehension processes they are using during shared and silent reading.

Cawthon et al. (2011) analyzed the impact of kinesthetic drama-based instruction techniques on student engagement. Drama-based instruction techniques include interactive games, improvisation, and role-playing. Role-playing allows students and teachers to construct a classroom environment with mutual understanding and growth opportunities through active movements and speaking and listening experiences. These collaborative drama-based techniques increase verbal interactions, physical movement and engagement in the classroom. Kinesthetic drama-based instruction creates a more dynamic and engaging learning environment for teachers and students.

There are also kinesthetic learning strategies that involve object manipulation and real-world experiences. According to Strahan et al. (2012), recent brain research shows that learning is about actively seeing connections between an abstraction and a hands-on concrete application. Selco, Bruno, and Chan (2012) explain how students are more engaged when they generate their own questions, design their own experiments, and conduct their own experiments aimed at solving real-world problems. This kinesthetic inquiry-based instruction includes the active participation of students as they experiment and investigate through hands-on experiments and studies. Students are able to establish connections to the real world, as they take on the role of

authentic workers within the learning experiences. These kinesthetic learning opportunities assist students in understanding the purpose of their learning and in becoming more actively engaged in their educational experiences.

Summary

In conclusion, the engagement of students at the middle school level has been defined in this literature review. This review has also explained the importance of student engagement. The causes of low engagement have also been explored in this review. A variety of responsive and differentiated teaching strategies, especially kinesthetic approaches, have been presented as possible interventions for improving and increasing student engagement.

CHAPTER III

METHODS

Design

This study used a quasi-experimental pre/post-test design to determine how kinesthetic learning strategies affect student engagement. The kinesthetic learning strategies were the independent variable and student engagement was the dependent variable in this study. The participants in this study experienced kinesthetic learning activities for four weeks after their initial completion of the student perception survey, the “Middle School Survey of Student Engagement.” The group also completed the student perception survey following the intervention of kinesthetic learning activities.

Participants

The participants in this study were twenty-eight eighth grade students from a suburban school in Baltimore, Maryland. The study used a convenience sample of students from an eighth grade academic level Language Arts class. The group was comprised of 18 male students and 10 female students. Eleven of the participants were 14 years old and 17 of the participants were 13 years old. The group included 12 African American students, 15 Caucasian students, and one student from another ethnic/racial group.

Instrument

The “Middle School Survey of Student Engagement,” developed by the researcher, was used in this study (see Appendix A). This instrument was based on the “National Survey of Student Engagement,” which is administered to students at the four-year college level. Analyses of the “National Survey of Student Engagement” have found it to be a valid and reliable instrument (Kuh et al., 2011). The instrument was modified to make it more accessible to

middle school students. The perception survey consisted of eight statements related to the active engagement of students. The survey required participants to rate the frequency in which they participate in a variety of engaging activities and engagement behaviors. The students were asked to rate whether they participate in each engaging activity or engagement behavior often, sometimes, or never.

Procedure

Twenty-eight students in an eighth grade academic level Language Arts class completed the “Middle School Survey of Student Engagement” as a pre-test. The students participated in kinesthetic learning activities, specifically drama-based instruction, during one class each week for four weeks. Each week the participants created and performed theatrical scenes related to their readings and other content in the class. Students worked in groups to rewrite various chapters from the novel as a script for a play. The students rehearsed their scenes and performed them in front of the rest of the class. The audience members would evaluate and critique each performance. Students also constructed tableaux vivants of various scenes from the novel. The groups would arrange themselves so that they could silently and motionlessly present a key scene from the novel. The students would also take on the role of a key character from the text in order to participate in active interviews and dialogues. Students would move around the room in order to interview different characters and discuss the various perspectives related to key events from the novel.

After experiencing the kinesthetic learning activities for four weeks, the students completed the “Middle School Survey of Student Engagement” again as a post-test.

CHAPTER IV

RESULTS

The purpose of this study was to determine if the implementation of kinesthetic learning strategies influenced the engagement of students in an eighth grade English Language Arts class. The results of the administered pre- and post-surveys were analyzed using a chi-squared test. The outcome of this test was utilized to determine whether the variety of student responses was a result of chance or of an actual variable.

The first question inquired if the respondent “asked or answered questions in class.” For question #1, the “never” values remained the same at 7.1% in the pre- and post-tests; 64.3% of students in the pre-test answered “sometimes,” which decreased to 57.1% in the post-test. This means that 7.2% of students changed their answers from “sometimes” to “often.” For “often,” the answer percentages changed from 28.6% to 35.7%. Although there were changes, these differences were not significant, $\chi^2(4,28) = 6.30, p = .18$.

The second question asked if the respondent “completed all of their class assignments.” For question #2, the “never” values remained the same at 0% in the pre- and post-tests; 53.6% of students in the pre-test answered “sometimes,” which decreased to 28.6% in the post-test. This means that 25% of students changed their answers from “sometimes” to “often.” For “often,” the answer percentages changed from 46.4% to 71.4% thus indicating no significant change in their responses, $\chi^2(1,28) = .06, p = .81$.

The third question inquired if the respondent “worked with other students on an assignment.” For question #3, the “never” values changed from 7.1% in the pre-test to 3.6% in the post-test. 60.7% of students in the pre-test answered “sometimes,” which decreased to 57.1%

in the post-test. For “often,” the answer percentages changed from 32.1% to 39.3%. These findings indicated a significant change in their perceptions, $\chi^2(4,28) = 13.89, p < .05$.

The fourth question asked if the respondent “put effort into completing assignments.” For question #4, the “never” values remained the same at 0% in the pre- and post-tests; 28.6% of students in the pre-test answered “sometimes,” which decreased to 14.3% in the post-test. This means that 14.3% of students changed their answers from “sometimes” to “often.” For “often,” the answer percentages changed from 71.4% to 85.7%. Although there were changes there was no significant difference, $\chi^2(1,28) = .03, p = .86$. The changes in this area of student engagement are presented in Table 1.

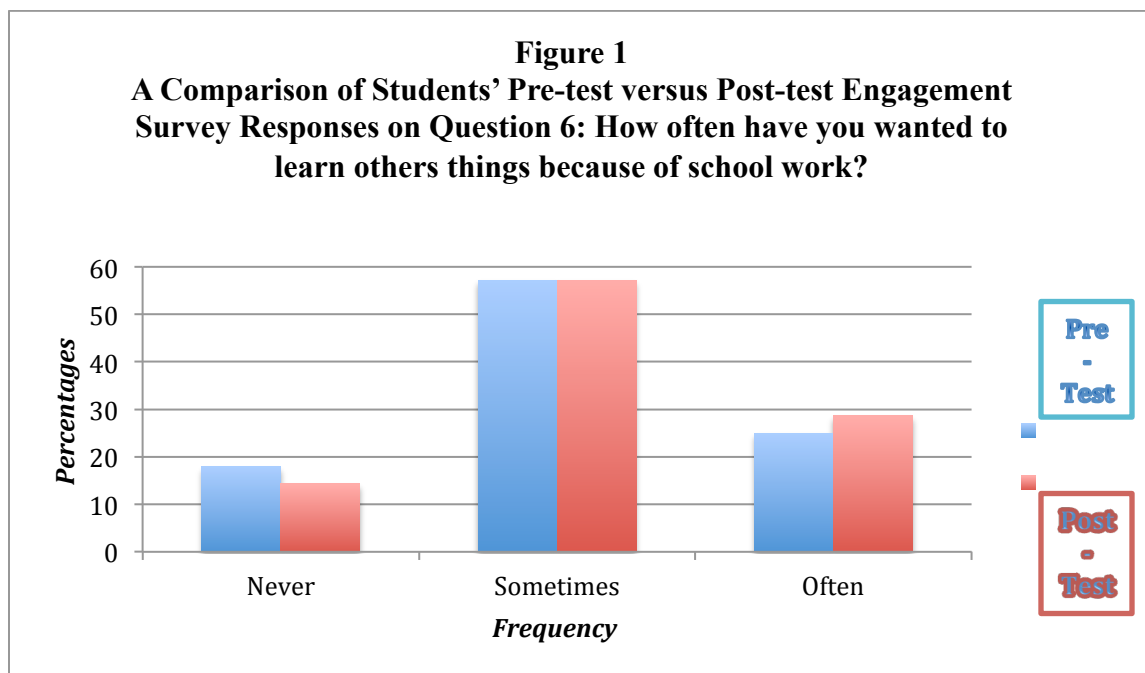
Table 1

**A Comparison of Students’ Pre-test versus Post-test Engagement Survey Responses
on Question 4: How often have you put effort into completing assignments?**

	Pre-Test % Response	Post-Test % Response
Never	0.0%	0.0%
Sometimes	28.6%	14.3%
Often	71.4%	85.7%

The fifth question inquired how frequently the student was “proud of his/her grades.” For question #5, the “never” values decreased from 7.1% in the pre-test to 3.6% in the post-test; 42.9% of students in the pre-test answered “sometimes,” which increased to 60.7% in the post-test. For “often,” the answer percentages changed from 50.0% to 35.7%. The critical value in this answer was $p < .05$, therefore, this indicates that there was significant change in their responses $\chi^2(4,28) = 14.07, p = < .05$.

The sixth question asked if the respondent “wanted to learn other things because of school work.” For question #6, the “never” values decreased from 17.9% in the pre-test to 14.3% in the post-test. The values for “sometimes” remained the same at 57.1%. For “often,” the answer percentages changed from 25.0% to 28.6%. Therefore, this indicates that there was no significant change in their responses, $\chi^2(4,28) = 3.92$, $p = .42$. These results are shown in Figure 1.



The seventh question inquired how often the respondent was “excited about class.” For question #7, the “never” values decreased from 39.3% in the pre-test to 17.9% in the post-test; 57.1% of students in the pre-test answered “sometimes,” which increased to 78.6% in the post-test. For “often,” the answer percentages remained the same at 3.6%. There was not a significant impact on this aspect of student engagement, $\chi^2(4,28) = 1.04$, $p = .90$.

The eighth question asked if the respondent “felt comfortable completing assignments.” For question #8, the “never” values increased from 7.1% in the pre-test to 10.7% in the post-test. 67.9% of students in the pre-test answered “sometimes,” which decreased to 50.0% in the post-

test. For “often,” the answer percentages changed from 25.0% to 39.3%. There was a change in this area of student engagement, $\chi^2(4,28) = 18.89, p < .05$.

Three out of the eight survey questions demonstrated significant differences between the student responses on the pre-test and the student responses on the post-test. Five areas of the survey showed little or no significant difference between the pre- and post-test results.

CHAPTER V

DISCUSSION

This study hypothesized that there would be no change in student engagement as a result of the implementation of kinesthetic learning strategies in an eighth grade English Language Arts classroom. The null hypothesis was partially confirmed. According to the results reported in Chapter IV, some areas of student engagement were influenced, but others showed little or no difference between the pre-test and post-test.

Implication of Results

The results of this study supported the null hypothesis. Although three areas of student engagement showed significant differences, the other five areas of student engagement displayed no differences. After the implementation of kinesthetic learning strategies, the following areas of student engagement showed a significant difference: how often the respondents “worked with other students on an assignment,” how often the students were “proud of their grades,” and how often the respondents “felt comfortable completing assignments.” Following the implementation of kinesthetic learning strategies, the following areas of student engagement showed no change: how often the respondents “asked or answered questions in class,” how often the respondents “completed all of their class assignments,” how often the respondents “put effort into completing assignments,” how often the respondents “wanted to learn other things because of school work,” and how often the respondents were “excited about class.” The implementation of kinesthetic learning strategies influenced students to record an increase in engagement in some of the areas measured in this study.

Theoretical Consequences

Kinesthetic learning strategies are considered to be effective teaching practices. Ineffective teaching practices and behaviors can influence students' perceptions and reduce students' willingness to engage in learning tasks (Li et al., 2007). The data shows that students reported increases in the pride they have in their work and the comfort that they feel when completing assignments.

However, the results from this study do not support the research and literature discussed in Chapter II. The kinesthetic learning strategies did not show an influence on students' perceptions and willingness to engage in learning tasks. According to Summers (2008), increased student engagement accompanies positive student perceptions about learning. The results show that students reported no difference in the effort they put into completing assignments and their excitement about being in class.

Teachers are responsive to a variety of learners and increase student engagement when they provide differentiated instruction that meets the needs of students according to their type of learning style and intelligence (Douglas et al., 2008). The results of this study show that there was no significant difference in a majority of the areas of student engagement that were surveyed, so the kinesthetic learning strategies did not fully meet the needs of the students according to their learning styles and intelligences.

According to Strahan (2008), students show academic momentum when they cooperate with others, assess their own work, seek guidance from their instructor and take academic risks within the learning environment. While students were able to cooperate with others and assess their own work during this study, the results showed no significant difference for the frequency in which the students asked or answered questions in class and completed all of their class

assignments. This shows that the students did not report that they were willing to take academic risks following the kinesthetic learning experiences within this study. Therefore, the results show that students did not increase their academic momentum as a result of the implementation of kinesthetic learning strategies.

Threats to Validity

There were several threats to validity in this study. The study had a very small number of participants; 28 students from one eighth-grade English Language Arts class. Some of the students were absent on some of the days that the kinesthetic learning strategies were implemented. This means that not all of the respondents had the same amount of experiences with the kinesthetic learning activities that were intended to increase student engagement.

The pre- and post-tests were identical, so students could have taken a biased approach to completing the engagement survey. The students could have answered questions according to what they believed the researcher wanted. Their responses could have also been affected by their perception of the purpose of the surveys.

This study used a small convenience sample. A larger randomized group would have added more validity. The sample consisted of volunteer students from one of the researcher's classes. The study could not be generalized for eighth-grade students because of the small convenience sample of students that was used.

Connection to the Literature

Students had a shared responsibility in planning and implementing their dramatic scenes during their kinesthetic learning experiences. According to Strahan (2008), instructors can promote engagement by creating a climate of shared responsibility, teaching explicit strategies for completing tasks, and developing differentiated activities. Lister (2005) describes how

tactual and kinesthetic learning activities provide effective differentiated learning to increase students' engagement. According to Cawthon et al. (2011), collaborative drama-based techniques, like the strategies used within this study, increase verbal interactions, physical movement and engagement in the classroom. Students experienced a climate of shared responsibility and differentiated activities, and the results show that these experiences increased the frequency in which students worked with other students on an assignment, were proud of their grades, and felt comfortable completing assignments.

Implications for Future Research

The researcher suggests modifications to improve the validity of future research in gauging the effect of the implementation of kinesthetic learning strategies on student engagement. Each participant should receive the same amount of kinesthetic learning opportunities. Students should receive supplemental kinesthetic learning when they return to school after being absent. These make-up learning opportunities could be experienced during lunch or after school. The practice of collecting and recording unbiased responses could be improved by utilizing strategies and procedures to address response bias. The selection of participants could include a larger and more diverse population in order to improve the validity of the study.

Conclusion

The results of this study showed that the implementation of kinesthetic learning strategies provided little change in student engagement. The overall results retain the null hypothesis because a majority of the areas of student engagement were not influenced by the kinesthetic learning activities. The threats to validity in this study demonstrate that improvements could be made in order to better determine the actual effect of kinesthetic learning strategies on student

engagement. Future studies and instructional practices should include the implementation of kinesthetic learning opportunities as differentiated instructional techniques for the purpose of analyzing and exploring their effects on student engagement.

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Appendix A

Middle School Survey of Student Engagement

Engagement is often a term used to mean “participation.” Your responses will help your school understand your needs as a student. Please answer honestly – we appreciate the time and energy you put into this survey.

Instructions:

- *Use an X or a ☒ to mark your responses*
- *Fill in only one response per question*

During this school year, about how often have you:

- Asked or answered questions in class
___Never ___Sometimes ___Often
- Completed all of your class assignments
___Never ___Sometimes ___Often
- Worked with other students on an assignment
___Never ___Sometimes ___Often
- Put effort into completing assignments
___Never ___Sometimes ___Often
- Been proud of your grades
___Never ___Sometimes ___Often
- Wanted to learn other things because of school work
___Never ___Sometimes ___Often
- Been excited about class
___Never ___Sometimes ___Often
- Felt comfortable completing assignments
___Never ___Sometimes ___Often