

Move to Learn: Implementing Kinesthetic Strategies in English Classes for ADHD Students

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Abstract:

“This study explores the implementation of kinesthetic strategies in English as a Foreign Language (EFL) classrooms to support students with Attention Deficit Hyperactivity Disorder (ADHD). Given the unique learning needs of ADHD students, traditional teaching methods often fail to engage them effectively. This research examines how movement-based activities enhance concentration, participation, and overall language acquisition. Through qualitative methodologies, including classroom observations and interviews with teachers, the study identifies specific kinesthetic strategies that foster improved learning outcomes. Findings suggest that integrating movement into lessons helps ADHD students maintain focus, process information more efficiently, and retain vocabulary and grammar concepts better than conventional approaches. Additionally, educators report increased student engagement and a more dynamic classroom environment. The study concludes that kinesthetic strategies offer a promising alternative for inclusive EFL instruction, advocating for their broader implementation in educational settings to accommodate diverse learning styles and improve overall student performance.”

Key Words: Educational needs, Inclusive education, Teaching methods

1. Introduction: Move to Learn

1.1 Statement of the problem

Attention-Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that most commonly affects children. According to Freeman (2022), ADHD affects students' impulse control, decision-making, and ability to focus. Because of this, students with ADHD are unlikely to thrive in structured learning environments, which creates academic difficulties and feelings of exclusion in class.

Traditional educational methodologies rely on lecture-based instruction and visual learning styles. These methods often exclude the neurodivergent needs of students with ADHD, leading to low academic performance and a decreased desire to participate in class (Malmqvist, 2018).

Even though awareness of neurodivergence has increased, many teachers still lack sufficient training to adapt their lessons and teaching strategies to support students with ADHD or other neurodivergent conditions (Anderson, 2012). As a result, students with ADHD may feel frustrated or believe they are not reaching their full potential, since they struggle to retain information, understand material, or focus during lessons, factors that decrease participation and increase feelings of exclusion.

The kinesthetic learning style is an alternative to the most common and used learning styles, such as visual or auditory. Kinesthetic learning incorporates movements, hands-on activities, didactic materials, interactive games, and objects that then engage the students, which improves attention and concentration, memory retention, and cognitive processing. As explained by Kosmas (2018). Previous research suggests that instead of regular lessons, visual or auditory methods, the use of strategies based on movement can help students with

ADHD process information a lot easier, and it also avoids in-class exclusion that students with ADHD can go through due to their challenges. Although studies have been done before and they have shown that kinesthetic learning can improve memory, attention, perception, and other cognitive processes in regular students and how these improvements can give better academic outcomes (Mosley, 2023; Ward, 2023) the use of kinesthetic learning in English as a Foreign Language (EFL) is still uncommon. This gap in research is important to our study since learning a new language requires constant concentration, attention, practice, and memorization, and these are things that students with ADHD find challenging in regular, lecture-based settings that use either visual or auditory learning.

Since ADHD has, most recently, been recognized as a neurodevelopmental difference instead of a behavioral disorder, as it was considered in the past, it now requires alternative educational strategies, methods, and approaches that can meet the needs of the students. Kinesthetic learning, which includes physical activity as a tool to improve cognitive processes, has been acknowledged for the potential to improve the attention, focus, and retention of learning for students who find difficulty with more traditional, regular, and lecture-based lessons (Kosmas, 2018). However, since researchers have not formally and thoroughly studied kinesthetic learning in an EFL classroom, our study will fill this gap. By researching and studying how kinesthetic lesson plans can improve learning, participation, and inclusivity for students with ADHD, this research would provide teachers and educators with more practical, movement-based lessons and strategies so they can engage with students better and provide an environment where students can thrive and excel. Also, in this study, the use of kinesthetic teaching methods will not be limited to what it can do in academic success, but also to its effectiveness in creating a more inclusive and supportive classroom environment for students with ADHD.

1.2. Literature Review

We aim to find how the kinesthetic learning style helps students with ADHD. We are trying to show and prove that using this can help those students in a way previous lessons and methods have not sufficiently been able to since kinesthetic learning helps students understand concepts easily due to the fact it stimulates their brain and maintains their focus in the task which affects their cognitive capabilities, according to Bay Atlanta University (2022) Through this learning style, students can use body movement and interact with their environments when learning. To better understand something, they need to touch or feel it; students usually prefer practical information over theoretical concepts.

We have researched information on our objects (kinesthetic learning, students with ADHD, and in-class exclusion) together and apart. In some of the articles and journals we have reviewed, we have found how the kinesthetic learning style benefits students with ADHD or lesson planning for special education in general. Furthermore, we have observed in-class exclusion among students with ADHD and identified how kinesthetic learning could resolve it. Therefore, by tying together the literature we have found on the subjects on their own and the articles we have found that link the subjects through the research, we have discovered ideas, positions, and approaches that we can relate to and guide for use in our final project.

Some research has specifically examined how movement-based strategies impact students' engagement and focus. One such study, "Effects of using a variety of kinesthetic classroom equipment on elementary students' on-task behavior: a pilot study" (Flippin, 2021), explains how from 10 to 50 percent of the time the students are in the classroom is spent on off-task behavior, and how this behavior can negatively impact learning, during the study, researchers implemented kinesthetic equipment as a method to intervene on the off-task behavior, the results showed that the students who participated in the experiment increased

their engagement in class activities and improved their on-task behavior., creating a better learning environment.

The impact of kinesthetic learning has also been explored in the context of student engagement during the COVID-19 pandemic. "Lessons Learned: Kinesthetic Learning and Engaging Students with ADHD (in the Time of COVID)" by Freeman (2022). This article discusses the subject of how students with ADHD and undiagnosed ADHD were affected by the COVID-19 lockdowns; it tackles the fact that students with ADHD are more prone to understanding and learning new information when they are engaged in the process and how, since the lockdowns created such a lack of engagement during the classes, students with ADHD were affected. Their academic process could have diminished because of it. This article helps us to support the idea that the lack of kinesthetic methods can have a negative effect on the learning process of students with ADHD.

While many studies focus on younger students, recent research has extended the exploration of kinesthetic learning to teenagers. One such study is "Collaborative guessing game for EFL learning with kinesthetic recognition" by Hwang (2023). This article is not aimed directly at young children. However, for teenagers, it also tackles the theory that physical movement during learning can improve the process; the study used a guessing game while teaching English to a group of teen students, and they observed that physical movements and constant engagement created a better learning outcome compared to a group of students who did not use the same method. The research itself was intended to evaluate learning achievement through guessing games. The "experimental group" used the guessing game, collaborating with others and using physical movement, while the "controlled group" used the methods individually and without the physical movement; the "experimental group" outperformed the "controlled group" in said learning achievement measurement.

Another perspective on kinesthetic learning comes from research on student evaluations. In "Learners' Perspectives on ELT Materials Evaluation Relative to Learning Styles" (Lee, 2015), the author explains how students with kinesthetic or physical learning styles feel about evaluations and exams and how these affect their performance and learning process. This information can help us decide what the best evaluation method for ADHD students is, ensuring they do not feel conflicted, hesitant, or unprepared. This is possible thanks to the style, methodology, and strategy used during their classes and learning. By understanding how students who prefer the kinesthetic learning style see and understand evaluations and exams, we have tailored different assessment methods to students with ADHD; we can achieve this through hands-on activities, movement-based evaluation strategies, interactive exams, etcetera. Instead of relying on regular written exams and using alternative assessments, ADHD students might develop self-confidence, feel more eager to participate, and be more likely to engage during lessons.

The connection between physical movement and cognitive function has been explored in several studies. One notable example is "Moving Bodies to Moving Minds: A Study of the Use of Motion-Based Games in Special Education" by Kosmas (2018), which shows us the existing connection between using our bodies to obtain knowledge. As its title states, this article indicates that moving our bodies can lead to moving our minds. It explains how this method helps elementary children improve their short-term memory skills and emotional state, and this supports the idea that physical movements enhance children's learning.

Educators are also actively considering integrating kinesthetic learning into their teaching strategies. "Kinesthetic Learning Strategies: A Qualitative Study of 3rd—5th Grade Teachers" by Mosley (2023) allows us to examine the perspective and role of the teacher when it comes to teaching this type of learning. It explains how psychomotor learning, mediated by them, facilitates students' cognitive skills development.

Additionally, we have found articles that show us different methods and examples through which the kinesthetic learning style can be implemented in the classroom with EFL students. One of them was "The effects of virtual reality on EFL learning: A meta-analysis" by Qiu (2023), which explains how applying the interactive methodology in virtual reality supports the learning process and enhances results through constant engagement in immersive, interactive, and experiential learning environments.

Furthermore, it was possible to find articles related to teaching processes and methods for students with ADHD, such as "Educational Intervention Strategies in the English Learning Classroom for Students with attention-deficit/Hyperactivity Disorder in Primary Education" by Moros-Ramos (2021) this article addresses and gives different activities, techniques, and methods, such as the teacher's instruction's review, analyzing different methodologies that would be put into practice, etcetera. These methods can provide the skills students with ADHD need to understand and learn English as a second language.

With that in mind, adapting classes to children with learning differences has become more frequent nowadays since educators strive to build a more inclusive environment that caters to the needs of different students. The paper "Foreign Language Learning for Children with ADHD: Evidence from a Technology-enhanced Learning Environment" (Liontou, 2019) tells us how using technology to engage EFL students with ADHD improves their reading comprehension. This research suggests that using technology and developing engaging material assists in the English learning process.

Adding to those, research on teacher training has explored how educator preparation influences instructional effectiveness "Review: Which components of behavioral parent and teacher training workshop for children with ADHD? – a metaregression analysis on child behavioral outcomes" by Hornstra, 2023 this article talks to us about how the training the teachers and parents have to help and work with with the world, how the components of the

teaching strategies, such as setting, delivery method, duration, and home-school collaboration can intervene in the effectiveness of the development of students' learning and progress. Even though this article focused on teaching strategies, it did not include any kinesthetic-related strategies that could be linked to the kinesthetic learning style.

The study "The Investigation of the Learning Style Preferences and Academic Performance of Elementary Students with ADHD" by Sfrisi (2017) dives directly into the learning styles students with ADHD prefer. However, this investigation also opened the door not only to information on what kind of physical environment students with ADHD feel more comfortable with at the moment of studying, but also shows some elements that can help or tamper with those students' academic performance.

Since the conversation about inclusive education has grown, researchers have explored specific intervention strategies for ADHD students in language learning. "Educational Intervention Strategies in the English Learning Classroom for Students with Attention-deficit/Hyperactivity Disorder in Primary Education" (Moro-Ramos, 2021) supports our ideas because it references how to manage and empower students with ADHD when taking advantage of behavioral difficulties. Regarding neurodivergence, we need to start thinking about how we will proceed regarding scenarios where we can avoid exclusion. This article also invites debate about the social impact this can have on children.

The importance of inclusive education has also been a focus of recent research. "Has schooling of ADHD students reached a crossroads?" (Malmqvist, 2018) analyzes how important the level of awareness is when having students with ADHD so that we can rethink the act of inclusion or exclusion in different schooling scenarios, we can develop this awareness by paying more attention during different moments of teaching and classroom development, such as classroom activities, lesson design, and materials, etcetera. This

awareness is necessary to ensure that students with ADHD receive the necessary support to thrive in the classroom.

On the other hand, we also discovered information in articles that explain how the lack of training given to school staff about lesson planning for students with ADHD can make teaching more complicated and how other methods can make the teaching process more manageable for teachers, the article "Using a collaborative working group model to develop an ADHD resource for school staff" by Ward (2023), explains how creating a group where different techniques, methods, and strategies that different teachers are using can make the process of lesson planning easier and how said group opens the possibility for different sources of knowledge and perspective to encounter and come up with better methodologies for students with ADHD.

Furthermore, we have talked about how teaching with a kinesthetic method can improve the learning of students with ADHD, but we also have to confront how to better prepare ourselves during the classes; we have to know the subject of ADHD. The article "Impact of Teaching Experience with ADHD on Knowledge, Self-efficacy and Teacher Stress" by Soriano-Ferrer & Echegaray-Bengoa (2019) shares with us the perspectives of teachers, with and without experience teaching on the topic of teaching students with ADHD, and it could be argued that when there is previous knowledge on the ADHD neurodivergence subject would create a better work environment and reduce the stress that comes with teaching children with that specific neurodivergence.

The role of teacher awareness and experience in supporting students with ADHD has also been a topic of significant discussion. The study "Knowledge of Attention Deficit Hyperactivity Disorder (ADHD) and attitudes toward teaching children with ADHD: THE role of teaching Experience" by Anderson (2012) delves into the opinions, ideas, perceptions, and experiences teachers have on teaching to students with ADHD; this research creates an

image of how those opinions, beliefs, and perspectives can be different or can be altered according to the stages of a teacher's career, and how the knowledge of ADHD or lack of it can either negatively or positively affect teaching methods, class development, and material design.

All of the previously mentioned information was researched and compiled because we, as researchers, agreed that we want to raise awareness of how students with ADHD can be overlooked in classroom settings or other learning environments, how the methods of teaching and learning can affect them, and how the lessons can become exclusive. After all, most teachers do not receive education on special education from the beginning. Therefore, educators do not design classes with neurodivergent students in mind; our final goal is to show how these can be resolved and avoided, and how the kinesthetic learning style can be one of the key methods to help achieve this goal.

1.3. Theoretical Framework

The primary objective of this project is to show how the kinesthetic learning style helps ADHD students with their neurodivergent learning and avoids in-class exclusion. We chose three different concepts and theories to support our statement and how we want to achieve it. Through our theoretical framework, we will be able to observe what those concepts are and how they will be used during our research to achieve our main goal.

In order to comprehend the concepts, we have to dive into their premises, such as kinesthetic learning, students with ADHD, and In-class exclusion. These contribute to the paper because they are key elements when designing lessons for this specific population, in which they can learn through their bodies, and, at the same time, the subject of exclusion, which can be a result of having ADHD, can start being minimized in the classroom. Also, by highlighting these points, we can have greater clarity regarding the vision of what we want to achieve with the project.

The first concept to refer to is Kinesthetic Learning. Bay Atlanta University (2022) defines kinesthetic learning as a method through which students can learn through their physical connection and interaction with their learning environment due to the need for physical interaction. Since EFL learning traditionally relies on visual and auditory learning, it tends to fail at accommodating students who are kinesthetic learners. "Collaborative guessing game for EFL learning with kinesthetic recognition" by Hwang (2023). This research demonstrates that physical movement and engagement improve information retention and cognitive processing. This aligns with our research problem, which highlights the lack of kinesthetic strategies in English classes, and it also connects to our objective to identify effective methods to create kinesthetic lessons.

Our research applies kinesthetic learning by observing movement-based strategies. In the article "Learners' Perspectives on ELT Materials Evaluation Relative to Learning Styles," Lee (2015) gives us insight into how students with a preference for kinesthetic learning feel at the moment of assessing their knowledge. This article provided us with a guide to reach our main goal since we wanted to approach the subject of kinesthetic learning. Still, we also wanted to tackle the subject of teaching students with ADHD. This article gave us a good starting point on the questions, feelings, and elements we have to consider when developing activities and assessments with the kinesthetic learning style while also keeping in mind the students.

After recognizing what the concept meant and why it was important in our research, we arrived at the premise of how to use this concept to achieve our primary goal. The article is "Moving Bodies to Moving Minds: A Study of the Use of Motion-Based Games in Special Education" (Kosmas, 2018). shows a specific situation and activity, and research explicitly explains how previous documentation shows the success of this learning style and the benefits that come with the obtained results; they are as follows: "Positive impact of the

games on children's short-term memory skills and emotional stage. Overall, the study improves our understanding of embodied learning via motion-based technology in teaching and learning with children with special educational needs" (Kosmas, 2018). Since our research aims to connect the gap between traditional EFL learning and kinesthetic learning, Kosmas's study supports our research question of how the kinesthetic learning style can help students with ADHD

The second concept we tackled in this theoretical framework is Students with ADHD. How students with ADHD feel more comfortable learning, what their challenges are, and how the learning styles used during the pandemic affected their learning and academic performance since they were traditional and mainly visually and auditory based are subjects that Freeman (2022) talked about in her article "Lessons Learned: Kinesthetic Learning and Engaging Students with ADHD (in the Time of COVID)" students with ADHD found their learning hindered by these methods and how these were a significant obstacle at the moment of their learning journey. During the COVID-19 pandemic, educators did not meet the learning needs of ADHD students. The findings of this research support our research problem, which addresses how ineffective traditional methods for English learning are for students with ADHD, and this also connects to our objective of creating kinesthetic lessons and observing if they have a positive effect on the learning of ADHD students.

Specific skills can be obtained and reinforced in home-school collaboration. Teachers can provide accommodations and modifications, and parents can offer additional support and reinforcement, such as understanding that ADHD is a neurodevelopmental disorder and approaching the child with empathy, patience, and flexibility. Also, breaking tasks into smaller ones, providing step-by-step instructions, and offering frequent breaks to prevent being overwhelmed and allow for movement. Hornstra (2023) touches on all of this in their article "Review: Which components of behavioral parent and teacher training workshop for

children with ADHD?" – A meta-regression analysis on child behavioral outcomes." Their findings reinforce the importance of kinesthetic lessons in classrooms and home settings. These findings are connected to our objective of evaluating the effect that kinesthetic lessons have on the learning of students with ADHD.

In order to address the challenges ADHD students face in regular classrooms, our study aims to include kinesthetic lessons in EFL classes. Moros-Ramos's (2021) study, "Educational Intervention Strategies in the English Learning Classroom for Students with attention-deficit/Hyperactivity Disorder in Primary Education," tells us the importance of emphasizing adaptability in teaching. Teachers can modify and tailor these strategies to meet the individual needs of students with ADHD who show symptoms such as inattention, hyperactivity, difficulty organizing tasks, emotional regulation challenges, etcetera. This methodological approach aligns with our study's goal of evaluating whether kinesthetic lessons can increase the participation and engagement in classes by students with ADHD.

Finally, after understanding the first two concepts, we were directed to the last: In-class exclusion. In-class exclusion refers to situations where students with ADHD are excluded from participating fully in classroom activities due to their symptoms or behaviors. This concept is explained in the article "Has schooling of ADHD students reached a crossroads?" by Malmqvist (2018). By failing to provide inclusive strategies, ADHD students will struggle to keep up with the lessons, which will lead to reduced participation and disengagement in classes, and this will create negative classroom experiences, such as "in-class exclusion." The findings from this study align with our research problem, which focuses on the impact that traditional lessons have on ADHD students, and it supports our objective to develop inclusive kinesthetic lessons.

Since teachers' perceptions, attitudes, and knowledge of neurodevelopmental disorders influence classroom inclusion, strengthening educators' understanding of ADHD

can diminish misconceptions and stigmas about this disorder, leading to more inclusive attitudes toward students with ADHD in a learning environment. Anderson (2012) explained this in their article "Knowledge of Attention Deficit Hyperactivity Disorder (ADHD) and Attitudes Toward Teaching Children with ADHD: The Role of Teaching Experience." The study's theory of inclusive education verifies the importance of designing kinesthetic lesson plans to prevent exclusion in English classes, which is part of our research's goal.

Collaborative working addresses the difficult challenges that come with ADHD. By bringing together teachers, administrators, mental health professionals, and parents, it would be easier to develop ADHD-inclusive resources. We arrived at this conclusion following the findings of Kovshoff (2023) in their study "Using a Collaborative Working Group Model to develop an ADHD resource for school staff." These findings reinforce our study's approach to integrating kinesthetic learning styles in classrooms and allowing teachers to include students with and without ADHD to reduce exclusion and improve classroom participation of students with ADHD

1.4 Research Question

How can the kinesthetic learning style help students with ADHD?

1.5 Objectives

1.5.1 General Objective

To establish how classes and lessons designed using the kinesthetic learning style help students with ADHD understand and learn English in a more favorable manner.

1.5.2 Specific Objectives

1. To identify methods for constructing kinesthetic learning style lessons.

2. To characterize the effect the creation of this lesson has on students with ADHD.
3. To evaluate the effectiveness of these lessons during classes on avoiding in-class exclusion.

2. Method

2.1 Methodology

This study followed an action research methodology. Action research was chosen to explore and reflect on classroom practices to improve student engagement through kinesthetic learning. Our procedure was divided into four stages. The first stage was thorough observation. The observation was developed over three weeks, twice a week in two-hour intervals. The observation stage was subdivided. In the first place, we observed the teacher, his teaching strategies, as well as the learning environment, such as the classroom, which included a television, a desktop computer, and a whiteboard; the rest of the materials were brought to the class by the teacher himself. For the next two weeks, we observed the 6 participants, each of their learning processes, their focus during the classes, and the interest they showed throughout the theory lessons, practice activities, and assessments. All of this information was collected and documented in an online file.

The second stage was the interviews, which were conducted over one week in two sessions. Each of the six participants was asked the same questions, which were designed by the researchers, and their purpose was to discover the participants' details regarding the classes, the teachers, and the teaching and learning process. The interviews were conducted in a quiet library and voice-recorded in order to keep all of the information documented. After this, the interviews were transcribed from speech to text, and finally, they were added to the online file, which had the observation process.

After the interviews, we continued with our third stage, which was the development of the materials and the lesson that was taught to the group. The materials and the lesson design were developed over a weekend based on the kinesthetic learning style and based on the topic the students were learning at the moment, which was Present Continuous. Following

the design, the lesson was taught in a two-hour window. The lesson was a practical activity, which was the game “A Treasure Hunt” on the topic that followed the theory class. During this lesson, we observed the behavior of our participants toward the design and the materials. The materials designed were, first a reminder of the subject of present continuous, followed by a story that included verbs they acted as a group, then flashcards (that included pronouns, verb to be, and verbs with ING) students used to form sentences in groups of three, and finally certain objects they use in a treasure hunt.

Finally, our fourth stage was a second round of interviews. Once again these interviews were developed in a quiet library for the six participants, however, this line of questioning was about the lesson we designed and developed, the students were asked about their personal feelings about the lessons, from their understanding of the subject, how comfortable they were with the methodology and the materials and their desire of having other lessons with a kinesthetic learning style.

2.2 Context

The participants selected for this action research were six students from a private bilingual school in Robledo, Medellín. This school has 4 different teaching modalities: Trilingual, bilingual, extended, and basic. The first three modalities have an eight-hour schedule, and the basic modality has a six-hour schedule. The Trilingual modality has classes developed in either English, French, or Spanish. The bilingual modality is developed in either English or Spanish. The extensions are developed only in Spanish (for eight hours). Finally, the final modality is developed only in Spanish (for six hours).

2.3 Sample

Diving specifically on the participants. Three of the participants were fourth-grade students who were diagnosed with ADHD by a trained professional. In contrast, the other three participants were fourth-grade students without an ADHD diagnosis. Students #1 and #2 are two 10-year-old male students, and Student #3 is a 10-year-old female student; the three of them are currently in fourth grade and have a diagnosis of ADHD. On the other hand, Student #4 is an 11-year-old female student, Student #5 is a 10-year-old female student, and finally, Student #6 is a 10-year-old male student. These three students are currently in fourth grade and do not have an ADHD diagnosis. All of the participants belong to a basic teaching modality. We decided to select the students from this modality since they are not in any classes that use English to teach other subjects. The basic teaching modality sees the English subject as a regular class, but the language is not used or developed anywhere else; therefore, the students of this modality do not have the advantage of practicing English in other scenarios.

The process of selection was as follows: the students of the group were divided into students with and without a diagnosis, and after that, the participants were selected at random. Once the students were selected, an informed consent (which was approved by the Bioethics Committee of the researchers' university) was sent to their guardians. This consent included the ethical considerations, including the procedure, the risks, the benefits, and the assurance of confidentiality.

2.4 Data Collection

The instruments utilized during the research were observation and interviews. During the observation part of the process, it was possible to discern the behaviors, disposition, and engagement the students evidenced toward the class, and at the same time, the methodology,

elements, and materials that the teacher used to enhance the learning process of students were observed. With this information, we were able to infer that the lessons were constantly visual and the engagement in that class was minimal by the students since most of the lesson was explained and developed verbally by the teacher on the whiteboard. That led us to the conclusion that we needed to add more physical and verbal engagement from the students.

This same instrument was used during the time we carried out the kinesthetic lesson. Through this instrument, we were able to observe that the students were more engaged and participative during a more physical and dynamic class; this game was done outside, with physical objects to search for. The students had to participate through physical movement. At this moment, the instrument was used to see how much the students participated in the game and whether the students liked it or not. In those ways, it furthered or trampled the lesson. After this observation, we were able to agree on the fact that both the students with and without ADHD were more engaged and participative during this part of the lesson than at any other time of the class.

2.5 Data Analysis

Our second instrument was in-depth interviews with questions designed by ourselves that aimed to find out the students' opinions and reactions the students had towards the regular English lessons. These interviews let us know what they did during the classes and guided us on which new elements or materials we could implement during the kinesthetic lessons to further their learning and engagement. Finally, a second set of interviews was conducted after the kinesthetic lesson, during which we were able to discover that the students learned the subject that was taught through a kinesthetic lesson with more ease, and at the same time they felt more engaged during the lesson, and their learning experience was fun and unexpected.

2.6 Ethical Considerations

Informed consent was obtained from the guardians of all participants, approved by the Bioethics Committee of the researchers' university. This consent covered the study's procedures, potential risks and benefits, and assurances of confidentiality for the students.

3. Results

Enhancing Engagement Through Dynamic Learning

The student interviews conducted after the kinesthetic class support the theories by showing how a dynamic class and a physical-based lesson, like the treasure hunt we developed, encouraged participation and learning.

- After the kinesthetic lesson was given, six students were interviewed.

Student Responses:

- Students 1, 5, and 6 mentioned that they enjoyed the treasure hunt because it involved movement and activity and reinforced their understanding of the lesson.

- Example: Student 6 stated:

“Investigadora: Ok. ¿Te gustó algo de nuestra clase? Estudiante 6: Sí. Investigadora: ¿Qué? Estudiante 6: Me pareció divertido cuando salimos, que empezamos a colocar cosas por ahí y decías que preguntabas qué significaba la palabra y nosotros teníamos que ir a buscar un objeto.”

(Researcher: Ok. Did you like anything about our class? Student 6: Yes. Researcher: What? Student 6: I thought it was fun when we went outside, we started placing things around, and you would ask what the word meant, and we had to go look for an object).

Interview 2, November 4th, 2024.

- Student 2 explicitly mentioned that they remembered the main concepts better because they were now associated with the hands-on activity of searching for the objects in the treasure hunt; this supports the idea that physical engagement helps students' learning.

- Student 4 pointed out that the entire class enjoyed the treasure hunt because it involved running and searching. This indicated that the kinesthetic component motivated the students to learn and engage.

Use of Didactic Materials in Learning

The students' response to using didactic materials proves the idea that kinesthetic learning improves their learning process. Objects, word cards, and interactive activities showed the students actively participating and engaging in the activity, while also helping them remember the key elements and concepts being taught.

- Observing the students during the "treasure hunt" showed a higher level of engagement. The students moved around, searched, and discussed the things they were looking for and the parts of the lesson those things were connected.

In-Class Exclusion and Student Engagement

The research observations provide concrete examples of how exclusion occurs in real classroom settings:

Paired Grouping and Confidence Levels:

When students with ADHD are placed in the same group or pair, they are more likely to connect with each other and the class. They feel confident because they feel they are on par with their other classmates. They will not be in competition because they are in the same position and can rely on each other.

Effects of Mixed Grouping on Participation:

However, when students with ADHD are placed in groups with neurotypical students who have more advanced English, they may not participate in activities as expected.

Student Experiences and Difficulties in Understanding Lessons

The first interviews revealed inconsistencies regarding the students' understanding of previous English lessons. Some were able to understand, and others were confused.

Students Who Struggled with Understanding:

- Student 2 mentioned that:

“Investigadora: ¿Qué cosas no entiendes? Estudiante 2: Cuando hacemos repaso, a veces no entiendo. Cuando estamos haciendo un tema en las palabras a veces no las entiendo.

En las palabras ahí. No las entiendo, las siento como un código morse.”

(Researcher: What things do you not understand? Student 2: When we review, sometimes I do not understand. When we are working on a topic, sometimes I do not understand the words. The words there. I do not understand them; they feel like Morse code).

Interview 1, October 21st, 2024.

Student 1 expressed that:

“Investigadora: Cuando el profesor te enseña la clase de inglés ¿Tú le entiendes?

Estudiante 1: Casi no. Investigadora: ¿Casi no? ¿Y por qué sientes que no le entiendes?

Estudiante 1: A la primera no porque lo dice en inglés, pero sí entiendo cuando lo dice en español.”

(Researcher: When the teacher teaches you English, do you understand him? Student 1: Almost not. Researcher: Almost not? And why do you feel like you do not understand him? Student 1: At first, no, because he says it in English, but I do understand when he says it in Spanish). Interview 1, October 21st, 2024.

Student 6 also stated that English classes are enjoyable, but sometimes struggles to understand certain parts of the lesson. This leads the student to check notes in the notebook to clarify any doubts.

Students Who Found the Instruction Clear:

- Student 5 stated that the teacher's explanations are clear and easy to understand because he gives examples and quizzes to reinforce learning.

- Student 4 appreciated that:

“Investigadora: ¿Por qué te gustan las clases de inglés? Estudiante 5: Porque el profesor es muy atento, a veces nos hace juego, entonces eso me gusta porque como nosotros nos retrasamos el año pasado por una profesora, él nos entiende, entonces nos da los temas más bajitos.”

(Researcher: Why do you like English classes? Student 5: Because the teacher is very attentive, sometimes we play, so I like that because we were held back last year by a teacher, and he understands us, so he teaches us topics in an easier way). Interview 1, October 21st, 2024.

Enhancing Engagement Does Not Eliminate Exclusion

Positive Inclusion Experiences:

- During the interview, students 1, 4, and 5 talked about how they felt included in the activity, which supports the idea that the kinesthetic learning style can encourage participation and inclusion between students and the lesson.

Example:

“Investigadora: Ok. Cuando estabas haciendo todas las partes de allá de las palabras y aquí afuera con la búsqueda del tesoro, ¿te sentiste incluida con el grupo? Estudiante 5: ¿Incluida? Investigadora: Sí, como todos estaban haciendo el mismo juego y sentiste que ellos también te incluían y te sentiste como en el grupo. Estudiante 5: Asiente con la cabeza.”

(Researcher: Ok. When you were doing all the parts over there with the words and out here with the treasure hunt, did you feel included in the group? Student 5: Included? Researcher: Yes, like everyone was playing the same game, and you felt that they included you too, and that you were part of the group. Student 5: Nods head). Interview 2, November 4th, 2024.

- Student 4 noted that they felt more included because they are the 3class president. This suggests that roles given to the students in the classroom might enhance inclusion even further. As stated in the second interview:

“Investigadora: Sí. Ok. Cuando estuviste, digo, estuvimos haciendo la clase en el salón y aquí afuera, ¿te sentiste incluida con el resto del grupo? Estudiante 4: Sí, pues siempre me he sentido incluida con el resto del grupo, porque pues yo era representante y así,

pero pues sí.”

(Researcher: Yes. Ok. When you were, I mean, when we were having the class in the classroom and out here, did you feel included with the rest of the group? Student 4: Yes, well, I have always felt included with the rest of the group because I was a representative and all, but yes). Interview 2, November 4th, 2024.

Mixed or Exclusionary Experiences:

- Students 3 and 6 did not feel either excluded or included.

Student 3 initially thought they did not feel included, but later changed their mind. They mentioned that they enjoy activities, whether physical-based or otherwise, since they do what they enjoy no matter what others think or how others perceive them. This reaction suggests that inclusion is linked not only to the learning style but also to the student's preferences and the dynamics between the students.

Student 6 felt like the activity was more individual than a group experience. Although everyone participated, the kinesthetic part of the activity was individual. They stated:

“Investigadora: Entonces, ¿te sentiste incluido o te sentiste excluido? Estudiante 6: Pues no, ninguna de las dos maneras, porque no era ni siquiera tampoco un grupo, pues no, todo es normal. Investigadora: Ah, ok. Estudiante 6: Porque cada uno iba por las cosas, salía corriendo y llegaba hasta ahí.”

(Researcher: So, did you feel included or excluded? Student 6: Well, neither, because it wasn't a group, so no, everything was just normal. Researcher: Ah, okay. Student 6: Because everyone was just going for the things, running, and getting there). Interview 2, November 4th, 2024.

These two final points of view show that although kinesthetic learning methods promote engagement, they do not automatically erase exclusion. The students who felt indifferent or excluded pointed out how their self-perception, their previous experiences in

the classroom, and the dynamics with other students also contributed to in-class exclusion.

4. Discussion

4.1 Implications and Interpretations

The findings and the theory this study was based show that using kinesthetic learning strategies in EFL classes can enhance engagement, memory, information retention, and inclusion, especially in students with ADHD. In this section, we will review and interpret the results. At the same time, we will compare them to the previous literature and theories and, therefore, discuss the implications this study has on teaching strategies and practices.

Engagement and Information Retention through Kinesthetic Learning

The study's observations and interviews shine a light on the positive impact that kinesthetic learning has on student engagement, retention of new information, and memory of previously learned information. Several students shared that physical activities, such as the treasure hunt we implemented, reinforced the information given in previous lessons. This can be linked to the research by Kosmas (2018); this research suggests that kinesthetic learning enhances cognitive development and processes. The findings we arrived at show how students are more likely to remember the information they were given and apply the knowledge they have if they are connected to interactive and practical activities; this supports the earlier research by Hwang (2023) that talks about the advantages that kinesthetic learning methods have in EFL classes. The link between this research finding and our previous literature strengthens our belief that including kinesthetic learning strategies in classes and involving students in physical activities enhances their capacity for learning, concentration, memory, and retention.

Participation and Inclusion in Classroom Activities

Additionally, our study discovered that kinesthetic learning creates a more welcoming and inclusive classroom environment. This is evident in the way students with ADHD become more proactive, participate more during kinesthetic activities, and are more engaged in the

lessons. The amount of in-class exclusion previously observed in regular classes decreased, thanks to the kinesthetic lesson. This outcome is consistent with the research by Freeman (2022), which talks about how interactive strategies create a more positive learning environment for students who find regular classes that are taught with traditional methods more difficult. That being said, the information collected suggests that although kinesthetic strategies can improve participation and create a more favorable classroom environment, they do not eliminate in-class exclusion. This point of view is consistent with research made by Anderson (2012), which says that instructional designs and teacher awareness are very important factors at the moment of encouraging and promoting inclusivity.

Clear Instructions and Effective Didactic Materials

We discovered that using didactic materials, like flashcards and physical objects, could increase students' interest in learning new words and concepts. Students accepted these materials and used them in their learning process during the lesson, which confirms our idea that including physical components improves comprehension and engagement. This result is consistent with the research by Moros-Ramos (2021), which supports the idea of flexible teaching methods to accommodate the needs of students with ADHD. Although our research showed many positive responses to the kinesthetic lessons, it is also essential to talk about other parts not linked directly to the kinesthetic style. However, the interviews highlighted the need for more specific instruction and not only activities, especially in the input part of the lessons. Taking into account that some students found it difficult to learn the information based only on English instruction, it is essential to include other strategies such as visual aids and Spanish support, and translation in order to improve comprehension. According to this, learning is only effective when using kinesthetic methods and detailed explanations together.

Challenges in Group Dynamics and Exclusion

Furthermore, our study discovered that the dynamic of the students inside the group, whether

they were diagnosed with ADHD or not, affects student engagement, even though kinesthetic learning had a positive effect in the classroom. When ADHD students who did not have a fluent grasp of the English language and its concepts were paired with students who had a better understanding of the language, they felt less confident. Their participation was lower in comparison to their participation when they were in individual activities or with other ADHD students. Malmqvist (2018) supports this observation by noting how traditional classrooms unintentionally exclude neurodivergent students. According to our results, there should be creative and careful grouping techniques that will help create a better learning environment where students with ADHD feel confident and included. After all, according to Ward (2023), collaborative learning can overcome the obstacles created by exclusion.

Implications for Educational Practice

Our study's findings highlight the advantages of kinesthetic learning for ADHD students and how they might improve the lessons and teaching of the English language. It was observed that the inclusion of kinesthetic activities into lessons can increase student engagement, memory, retention, and other abilities. To guarantee that all students, no matter their learning differences, can become successful in the process of learning English as a second language, educators should use both kinesthetic strategies and deep explanations. These strategies can create a learning environment that is friendlier to students with ADHD, to keep a safe classroom without in-class exclusion.

4.2 Conclusions and Recommendations

This study emphasizes how important it is to create awareness around the difficulties that students with ADHD might face. The findings of this study highlight how effective kinesthetic learning is in reducing in-class exclusion and increasing participation from students with ADHD. Our research demonstrated that students with and without ADHD

could positively benefit from classes designed with a kinesthetic learning style in mind. The research also demonstrated that interactive and physical activities increase the engagement students have in the classroom, and also how they are motivated to learn the subject of the lesson, whether they have or do not have an ADHD diagnosis. At the moment of comparing the designed kinesthetic lesson to the traditional classes, it was possible to see how there was a more inclusive environment for students with ADHD and how they felt more comfortable at the moment of participating, which then furthered their opportunity to develop their knowledge and continue their learning by retaining the information that was taught during the lesson.

Furthermore, the study found that using materials such as flashcards and physical activities such as a treasure hunt, which includes physical objects, enhance the students' ability to understand new concepts, but at the same time there should be previous input and even then some students might still need further instruction or support, such as visual text or translations to fully understand all the parts of the lesson. This suggests that although kinesthetic methods are good to teach certain subjects and engage students, they should be used with other strategies to improve learning outcomes.

Despite the overall success witnessed in the kinesthetic lessons, there were also challenges during the process, and the findings also provided information that could allow more space for research in the future. While we could see that the dynamic and physical activities helped at the moment of engaging students with the class, they did not completely eliminate the exclusion the class creates towards students with ADHD. The research showed that other more specific things came into play at the moment of creating in-class exclusion, such as group dynamics, language proficiency from students with and without ADHD, and how clear the previous instructions or the previous input was to each student. These aspects play a role in whether the students will benefit from the kinesthetic learning style. An

example was in the way students with ADHD felt more comfortable at the moment of participating, whether it was in a traditional class or a kinesthetic class, if they were paired with students with the same learning needs, instead of students with a higher proficiency in English.

At the end of our findings, we can conclude that there are certain implications that our study has for the future of education, such as including kinesthetic strategies in the classroom can create a more inclusive environment for both students with and without an ADHD diagnosis. Also, the use of physical activities, direct instructions, and verbal explanations together can help teachers encourage students to participate more in the class and to be more engaged in it. However, the teacher should take into account the importance of additional support to students who require more than just structured explanations and physical activities.

Finally, our research underlines the potential of kinesthetic learning to close the gap in classroom inclusivity. It does so by showing how important it is to adopt flexible teaching methods that tackle the needs of diverse students. This is something future studies can research on — how the use of kinesthetic strategies affects students in the long term, instead of a short one, and also it can investigate how this method can be further improved to reduce in-class exclusion for students with ADHD.

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