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Enhancing Kindergarten Letter Recognition Through Play-Based Learning

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APPROVAL SHEET

The undergraduate research proposal attached here to entitled, "ENHANCING KINDERGARTEN LETTER RECOGNITION LEVEL THROUGH

PLAY-BASED LEARNING", prepared and submitted by JARAIMA TARAHUMARA TWYLA CABALLO, HEART ANGELA C. CASTOR, HONEY

MAE C. LAZATIN, LOVE JOY C. TABAFA, in partial fulfillment of the requirements for the degree Bachelor of Early Childhood Education is hereby endorsed.

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Date: Class Adviser

Bachelor of Early Childhood Education

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ABSTRACT

CABALLO, J.T.T., CASTOR, H.A., LAZATIN, H.M., and TABAFA, L.J., Central Mindanao University, Musuan, Maramag, Bukidnon, Enhancing Kindergarten Letter Recognition Through Play-Based Learning.

Adviser: Gladys S. Escarlos, PhD

This study investigated the effectiveness of a play-based learning intervention, the Letter Jump Game, in enhancing letter recognition skills among kindergarten learners at Musuan Integrated School. The research aimed to address the limitations of traditional instructional strategies in early literacy by introducing an interactive and developmentally appropriate approach tailored to young learners. Specifically, it sought to determine whether the integration of kinesthetic movement and cognitive engagement through play could improve learners' ability to recognize uppercase and lowercase letters. A quasi-experimental one-group pretest-posttest design was employed. Fifteen purposively selected kindergarten pupils aged 4 to 6 years old participated in the study. Pre-test and post-test assessments measured their letter recognition levels before and after a three-week intervention period, during which the Letter Jump Game was implemented three times per week. Data were analyzed using descriptive statistics and paired samples t-tests. Results showed an increase in mean scores from 12.33 to 14.47 for lowercase letters and 14.20 to 15.47 for uppercase letters, indicating improved recognition skills. However, these improvements were not statistically significant ($p > 0.05$). Despite this, qualitative observations noted increased engagement, confidence, and participation, especially among kinesthetic learners and those who initially struggled. The study concludes that while the intervention did not yield statistically significant results, it demonstrated practical benefits in promoting early literacy skills through active learning. The findings support the integration of play-based and kinesthetic strategies into early childhood instruction and recommend further research with larger samples and extended durations to validate the approach's effectiveness.

Keywords*: Play-Based Learning, Letter Recognition, Kindergarten, Kinesthetic Learning, Early Literacy.*

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This research is a reflection of everyone's support, and we are truly thankful for each contribution that helped bring it to life.

The Researchers

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DEDICATION

This research is dedicated to Almighty God, the source of all things, and to:

Ms. Carol L. Caballo; Mr. and Mrs. Rolly F. Castor;
Mr. and Mrs. Mike Calica; and Mr. and Mrs. Larry A. Tabafa

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CHAPTER ONE
INTRODUCTION

A. Background of the Study

Kindergarten serves as a critical stage in the academic and developmental journey of young learners, providing the foundation upon which future learning is built. Among the core competencies developed during this period, letter recognition is a fundamental skill essential for acquiring literacy. Mastery of letter recognition is a precursor to reading and writing proficiency, enabling learners to identify, distinguish, and associate letters with their corresponding sounds. These skills form the building blocks of phonemic awareness and decoding, which are integral components of literacy.

However, challenges in letter recognition remain prevalent among young learners, with some struggling to grasp these foundational concepts due to developmental delays, limited exposure to literacy-rich environments, or ineffective instructional strategies (Zosh et al., 2017). In an ideal learning environment, early literacy instruction is engaging, interactive, and aligned with the developmental needs of young children. Play based learning has gained recognition as an effective pedagogical approach, offering children opportunities to learn through exploration, interaction, and movement.

Research supports the notion that active learning environments foster deeper engagement and better retention of literacy skills (Hirsh Pasek et al., 2016). Despite this, traditional teaching methods, such as flashcards and worksheets, remain dominant in many classrooms, often leading to disengagement and limited skill acquisition among learners. Addressing these limitations requires innovative approaches that integrate play with learning to cater to the diverse needs of kindergarten learners.

The educational challenges faced by kindergarten learners in mastering letter recognition are not isolated to individual schools or regions; they represent a broader concern in early childhood education. Richland et al. (2018) emphasize that play based learning interventions, when implemented effectively, can bridge developmental gaps and enhance early literacy outcomes. The current study explores the potential of the Letter Jump Game, a multisensory play-based activity, to provide a solution to these challenges. By integrating kinesthetic movement with cognitive tasks, this intervention aligns with evidence-based practices that support young children's learning.

This research builds upon prior findings to address the gap between traditional instructional methods and the developmental needs of young learners, particularly in the context of letter recognition. It seeks to contribute to the growing body of literature advocating for play based learning as a transformative approach in early education. Through this study, the aim is to enhance understanding of effective teaching strategies that support foundational literacy while fostering an engaging and developmentally appropriate learning environment.

This research seeks to address the difficulties faced by kindergarten learners in recognizing letters. Traditional teaching methods, such as flashcards and rote memorization, often fail to captivate young learners, resulting in disengagement and limited retention. To solve this problem, this study explores the effectiveness of a play-based learning intervention, specifically the Letter Jump Game, in improving letter recognition skills among kindergarten learners at Musuan Integrated School.

Addressing this problem is vital because letter recognition forms the bedrock of literacy development. Enhancing this skill in young learners can foster their confidence in reading and writing, positively influencing their overall academic performance. By integrating a fun, interactive, and developmentally appropriate approach, such as the Letter Jump Game, this study aims to provide an innovative solution that caters to the unique needs of kindergarten learners. Furthermore, the findings of this research can serve as a valuable resource for educators, parents, and curriculum developers in improving early literacy practices.

Previous studies emphasize the importance of engaging, play-based learning strategies in early childhood education. Zosh et al. (2017) highlight that play- based interventions actively engage learners and enhance their ability to retain information. McClelland et al. (2015) found that hands-on activities significantly support letter recognition and other literacy skills, fostering a more meaningful learning experience.

Hirsh-Pasek et al. (2016) demonstrate that interactive and multisensory approaches promote cognitive development and sustain young learners' interest. These findings reinforce the need for innovative teaching strategies like the Letter Jump Game to address the challenges in letter recognition among kindergarten learners.

This study was conducted at Musuan Integrated School during the academic year 2025, located in Maramag, Bukidnon. The participants were kindergarten learners from one section who were identified as having difficulties in early literacy skills, specifically in recognizing uppercase and lowercase letters. These foundational skills are essential for reading readiness and future academic success. Recognizing the importance of early intervention, this study aimed to implement targeted instructional strategies to support these learners. The intervention was carried out over a three-week period, during which the participants engaged in various developmentally appropriate activities designed to improve letter recognition. Pretest and posttest assessments were used to evaluate the effectiveness of the intervention in enhancing the learners' literacy skills.

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B. Statement of the Problem

This research aimed to identify the impact of play-based learning interventions on enhancing letter recognition skills among kindergarten learners at Musuan Integrated School during the second semester of the 2025 academic year.

➢ *The Study Specifically Sought to Answer the Following Questions:*

- What is the level of kindergarten learners' letter recognition skills in terms of uppercase and lowercase letters before and after the intervention?
- Is there a significant difference in kindergarten learners' recognition of uppercase and lowercase letters before and after the intervention?

C. Objectives of the Study

The objective of this study was to determine the impact of the Letter Jump Game on enhancing the letter recognition skills of kindergarten learners at Musuan Integrated School.

➢ *Specifically, the study aimed to:*

- Assess the level of kindergarten learners' letter recognition skills before and after the implementation of play-based learning interventions.
- Determine if there is a significant difference in the letter recognition skills of kindergarten learners before and after the intervention.

D. Significance of the Study

This study is highly significant to learners as it addresses the foundational literacy needs of kindergarten students while offering valuable insights to other stakeholders in the educational ecosystem. The engaging, play-based "Letter Jump Game" may enhance letter recognition skills, making learning more enjoyable and interactive. It also has the potential to promote the development of social and physical skills by encouraging cooperation, movement, and active participation. This holistic approach may foster confidence and motivation in learners, building a strong foundation for reading, writing, and overall developmental growth crucial for future academic success.

For teachers, this study may provide an innovative teaching strategy that goes beyond traditional methods. The integration of play-based learning could make lessons more engaging and cater to diverse learning styles, particularly for kinesthetic learners. It offers practical, evidence-based approaches that may enhance classroom instruction and learning outcomes, thereby supporting effective classroom management and teaching practices.

Parents may also benefit from this study, as it encourages the implementation of play-based activities at home to support their child's literacy journey. The findings may help parents better understand their child's learning process and enable them to actively contribute to their development, potentially boosting confidence in their child's abilities.

Moreover, this study is intended to support educational institutions by emphasizing the importance of incorporating innovative, child-centered methodologies into the curriculum. Schools may leverage these findings to design more effective early literacy programs, improve overall academic performance, and foster a love for learning among young students.

Lastly, the study may serve as a foundation for future researchers exploring other play-based interventions in early childhood education. The findings contribute to the growing body of research on the effectiveness of active learning strategies and open avenues for further investigation into their long-term impact on literacy, social development, and other academic skills.

E. Scope and Delimitation of the Study

This study investigates the effectiveness of the Letter Jump Game as a play-based learning activity in enhancing letter recognition skills among kindergarten learners. Participants were selected based on their difficulty in recognizing letters, as identified through pretest scores and teacher assessments. The study was conducted over a period of three weeks, with the intervention implemented three times per week during the fourth grading period of the 2024–2025 school year.

The focus of the study was limited to learners' ability to identify uppercase and lowercase letters. The Letter Jump Game serves as the independent variable, while the learners' letter recognition performance is the dependent variable.

This study is limited to short-term improvements in letter recognition and does not assess other aspects of literacy such as phonemic awareness, vocabulary, or reading comprehension. Furthermore, the scope is restricted to one public school, Musuan Integrated School, and does not include learners from other grade levels or educational institutions, thereby limiting the generalizability of the findings. These parameters were set to ensure a focused and feasible investigation within the defined time frame and population.

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F. Definition of Terms

The following terms are operationally defined for easy understanding of the key concepts of the study:

Letter recognition refers to the ability of kindergarten learners to identify and name both upper-case and lowercase letters of the alphabet. In this study, letter recognition is measured by pre-test and post-test assessments, where children are asked to identify random letter presentations and name each correctly.

Play-based Learning refers to an educational approach that integrates learning into play activities, where children engage in structured or unstructured activities that stimulate cognitive, emotional, and social development. In this study, the play-based intervention involves the "Letter Jump Game," which combines physical activity with literacy learning.

Letter Jump Game is a physical, play-based activity where large letter squares are placed on the ground, and children jump from one to another based on a dice roll, naming the letter they land on. It is designed to reinforce letter recognition through movement and interactive play. How does Kindergarten learners refer to children typically aged 4 to 6 years old, enrolled in the kindergarten program at Musuan Integrated School. These students are in the early stages of developing foundational literacy skills.

Kindergarten learners refer to children who are typically aged 4 to 6 years old, enrolled in the kindergarten program at Musuan Integrated School.

Pre-Test refers to an assessment conducted before the intervention to measure the learners' initial letter recognition skills.

Post-Test refers to an assessment conducted after the intervention to measure any improvements in the learners' letter recognition skills.

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CHAPTER TWO
THEORITICAL FRAMEWORK

This chapter presents the literature and related studies on the jump into letter or letter jump game on enhancing letter recognition skills. It also contains the conceptual framework and the hypothesis of the study.

A. Review of Related Literature and Studies

The Review of Related Literature (RRL) synthesizes existing research on the effectiveness of play-based learning, letter recognition, and kinesthetic approaches in early childhood education, with a particular focus on letter sound recognition. The goal of the RRL is to support the rationale for using the Letter Jump play-based activity as an intervention for improving letter recognition skills among Filipino kindergarten learners.

➢ *Play-Based Learning*

Play-based learning is considered one of the most effective pedagogical methods for young children, promoting cognitive and social-emotional development. Research suggests that play-based activities support literacy development by creating an interactive, engaging environment for children (Sakib,2022). Children who engage in play-based learning, particularly in structured games, show improved literacy outcomes as they naturally integrate academic content with play, making learning enjoyable (Samson, 2024).

Studies show that incorporating physical movement into literacy instruction increases student motivation and engagement, leading to better retention of letter recognition skills (Sakib,2022). For example, the integration of movement- based games such as the "letter hop" and "letter jump" games has proven effective in improving children's letter recognition and phonemic awareness (Richland, 2021). These games help children physically engage with the alphabet, associating each letter with a bodily action, thereby reinforcing their visual and auditory associations with letters and sounds. This multisensory approach to learning strengthens the cognitive connection between letters and their corresponding sounds, enhancing literacy development in an enjoyable and dynamic way.

Studies indicate that play-based learning increases engagement, motivation, and retention of information via both organized and unstructured play (Bubikova- Moan et al., 2019; Zosh et al., 2017). Nevertheless, teachers encounter difficulties in its execution because of curriculum limitations, the pressures of standardized testing, and parental demands that prefer conventional teaching methods (Mercy, 2021). Despite these challenges, research highlights that successful play-based learning integration necessitates policy backing, educator training, and a change in parental perspectives to enhance its educational advantages.

Many studies emphasize the beneficial effect of play-based learning on cognitive skills and literacy growth. Alotaibi (2024) discovered that game-based learning, a well-organized version of play-based learning, greatly enhances cognitive abilities, involvement, and enthusiasm in young students. Sakib (2022) additionally reinforces this by illustrating how engaging, practical experiences improve literacy development, especially in recognizing letters. Moreover, Ranson (2019) presented the "Noisy Letter Jump Phonics Game," a multisensory strategy that strengthens phonemic awareness via movement and play. These results correspond with kinesthetic learning methods like the "Alphabet Hop," which uses physical activity to improve phonics teaching and bolster early reading abilities.

In general, incorporating play-based learning in early childhood education provides significant advantages, especially regarding literacy growth. Although educators acknowledge its effectiveness, successful implementation relies on addressing challenges linked to policy support, resources, and teaching strategies. Multisensory and movement-oriented strategies offer promising methods that accommodate various learning styles, enhancing the engagement and effectiveness of early literacy teaching. Future studies ought to investigate lasting effects and methods to improve the application of play- based learning in different educational environments.

➢ *Early Literacy Development*

The early development of literacy is an essential base for a child's future education and academic achievement. It includes essential skills like phonological awareness, vocabulary development, comprehension, and initial writing capabilities. Studies highlight the significance of play-centered learning in developing these abilities, as imaginative play promotes symbolic thought, storytelling skills, and problem-solving (Encyclopedia on Childhood Early Development, 2023). Socio-dramatic play, especially when led by educators, boosts vocabulary growth and story understanding, generating significant contexts for literacy acquisition. Nonetheless, although play-based methods are advantageous, they must be combined with organized literacy teaching to provide a well-rounded and efficient learning experience.

An important factor in early literacy growth is movement-based learning, connecting physical activity to cognitive development. Shanti (2017) emphasizes the Jumping Alphabet, a learning toy that improves phonemic awareness and letter recognition via physical activity. This research is consistent with studies that advocate for kinesthetic learning as a successful method for teaching early literacy. Through participating in active play, children enhance their grasp of letter-sound connections and boost recall. Nonetheless, although movement-based learning appears promising, additional research is necessary to assess its long-term

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impacts and flexibility in various classroom environments.

The development of early literacy is also shaped by environmental factors and instructional assistance, such as parental engagement, availability of books, and teacher-led literacy exercises. Voyager Sopris Learning (2023) highlights the importance of literacy-enhanced settings, where children engage with reading and writing via interactive methods like shared reading, storytelling, and discussions. These approaches enhance preparedness for school and cognitive growth, which ultimately aids in lifelong learning. Although early literacy interventions prove effective, obstacles persist in providing access to literacy resources, especially in marginalized communities. Additional studies are required to investigate creative and inclusive methods that enhance early literacy growth for every child.

- *Letter Recognition Skills in Kindergarten*

Letter recognition is a fundamental aspect of early literacy development, directly influencing later reading and writing skills (Majorano et al., 2021). However, many children, particularly in the early years, struggle with associating visual symbols (letters) with their corresponding sounds, leading to reading difficulties. (Richland, 2021), found that children struggling with letter recognition often face challenges in phonological processing, a skill crucial for reading comprehension.

Interventions that address letter recognition through engaging, hands-on methods such as play-based learning can significantly improve early literacy skills. Letter recognition skills can be enhanced when children are actively engaged in tasks that associate letter names, sounds, and forms with physical movement (Samson, 2024). The integration of movement-based activities, like the "letter jump game," makes learning more concrete by allowing children to physically engage with the content, further supporting the development of letter recognition and phonemic awareness.

- *Letter Jump Game*

The "letter jump game," which combines physical movement and cognitive tasks, has emerged as a popular tool for improving letter recognition. The game's integration of movement with literacy tasks strengthens the connection between the mind and body, making learning more engaging and memorable. Previous studies have highlighted the benefits of movement in learning, showing that physical activity promotes cognitive development and enhances memory retention (Cohen, 2019; Richland, 2021). The "letter jump game" uses physical activity to reinforce letter recognition and phonemic awareness by associating each letter with a movement, thereby improving focus and recall. Studies on similar games, such as "letter hop" and "letter jump," show that children who engage in these types of kinesthetic learning activities demonstrate improved letter recognition skills. By linking each letter with a physical action, children form a multisensory association between the symbol and sound, which enhances both cognitive and motor memory (Pica, 2017; Richland, 2021). The "letter jump game" also promotes social interaction, as it often involves working with peers or teachers, further contributing to cognitive development.

B. Conceptual Framework of the Study

The conceptual framework of this study links the independent variable, play-based learning strategies like the Letter Jump Game, with the dependent variable, which is the improvement in letter recognition skills. It draws from educational theories that highlight the value of social interaction, cognitive development, and multiple intelligences in early learning.

Vygotsky's Social Constructivism emphasizes learning through social interaction within the Zone of Proximal Development. The Letter Jump Game supports this by allowing teachers to guide students just beyond their current skills, helping them connect letters with sounds through meaningful, scaffolded interactions.

Piaget's Theory of Cognitive Development states that children learn by interacting with their environment, especially during the preoperational stage. The Letter Jump Game supports this by combining movement with letter recognition, helping children actively engage and reinforce their understanding through play.

Gardner's Multiple Intelligences Theory suggests that learning should cater to different strengths. The Letter Jump Game engages bodily-kinesthetic and interpersonal intelligences through physical activity and group interaction, creating a more inclusive and effective learning experience.

Altogether, these theories form a strong foundation for using the Letter Jump Game to improve letter recognition. The game encourages cognitive, social, and physical growth, making it a powerful tool for developing early literacy skills in kindergarten learners.

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C. Research Paradigm

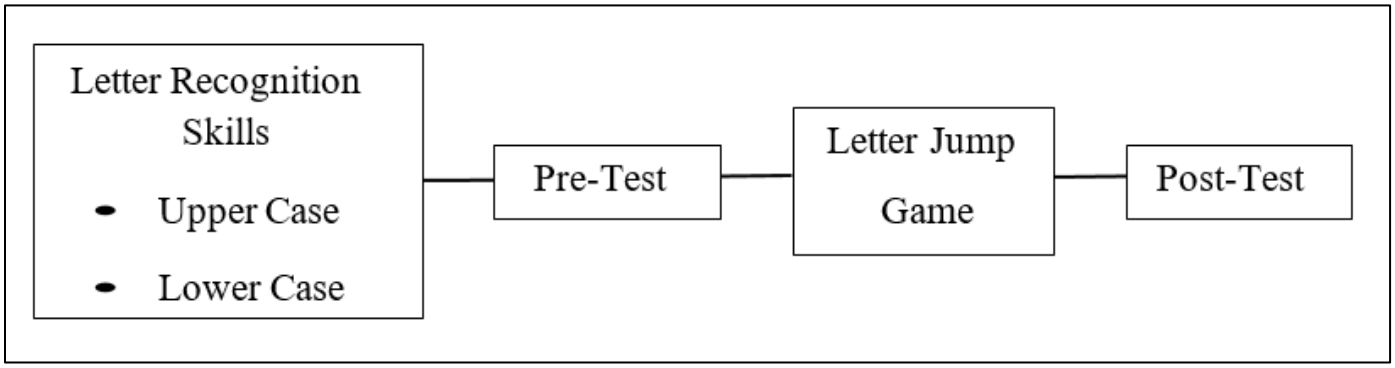

Fig 1: Research Paradigm

Figure 1. The research paradigm utilized in this study is a quasi- experimental design that follows a pre-test intervention post-test format to assess the effectiveness of a play-based learning strategy, specifically the Letter Jump Game, in enhancing the letter recognition skills of kindergarten learners. It begins with a pre-test to evaluate the learners' initial ability to recognize both uppercase and lowercase letters, establishing a baseline for comparison. This is followed by the implementation of the Letter Jump Game, an engaging and movement-based activity designed to reinforce letter recognition through interactive and kinesthetic learning experiences. After the intervention, a post-test is conducted using the same criteria to determine any improvement in the learners' letter recognition performance. By comparing the results from the pre-test and post-test, the paradigm allows for the analysis of the intervention's impact. Although random assignment is not applied, the quasi-experimental nature of the design provides a structured approach to evaluating the effectiveness of the intervention within an authentic educational environment.

D. Hypothesis of the Study

The research aims to provide conclusions that would either reject or accept the following alternative and null hypothesis:

- *Null Hypothesis (H_0):*

There is no significant effect of play-based learning interventions on the letter recognition skills of kindergarten learners at Musuan Integrated School.

- *Alternative Hypothesis (H_1):*

There is a significant effect of play-based learning interventions on the letter recognition skills of kindergarten learners at Musuan Integrated School.

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CHAPTER THREE
RESEARCH METHODOLOGY

This chapter presents the methods and procedures employed in the study, which include the research design, respondents of the study, locale, instruments, data gathering procedure, and statistical treatment of data.

A. Research Design

This study used the quasi-experimental design, specifically a one group pretest-posttest design, to evaluate the impact of play-based learning interventions, particularly the "letter jump game," on kindergarten learners' letter recognition skills. In this design, the same group of participants is assessed before (pre-test) and after (post-test) the intervention, allowing researchers to determine the effectiveness of the intervention by comparing the respondents' performance at both stages. The experiment was conducted over three weeks during the 4th grading period.

The choice of this design is appropriate because it provides a straightforward and practical framework for measuring changes within a single group, eliminating the need for a control group, which may be challenging due to resource or ethical constraints. Quantitative data from pre- and post-test scores will capture measurable skills improvements.

B. Locale of the Study

This study was conducted at Musuan Integrated School, a public school located in Musuan, Maramag, Bukidnon. The school operates under the Maramag II District of the Bukidnon Schools Division of the Department of Education and is headed by Principal I, Mr. Weenkie Jhon A. Marcelo. The school offers three kindergarten classrooms, and the researchers selected one section for the study, consisting of 30 learners divided into two shifts: 15 learners in the morning and 15 in the afternoon.

The researchers chose this school due to its unique educational environment and the availability of kindergarten education, making it an ideal setting for studying the impact of play-based learning on early literacy skills.

Fig 2: Location Map of the Study Site: (A) Map of Maramag; (B) Map of Musuan Integrated School

C. Participants of the Study

The participants of this study were kindergarten pupils from Musuan Integrated School in Musuan, Maramag, Bukidnon. A total of 15 kindergarten students from one morning shift section were selected. This sampling method was used to identify participants who met specific criteria relevant to the research objectives, thereby ensuring meaningful insights into the effectiveness of the intervention. These 15 learners, composed of both male and female students aged 4 to 6 years old, formed the experimental group. They received the Letter Jump Game intervention a play-based learning activity designed to enhance letter recognition skills through engaging and interactive physical tasks. While purposive sampling ensured the selection of participants most likely to benefit from the intervention, it may also limit the generalizability of the findings to broader populations. Nonetheless, this approach provided focused data on the intervention's effectiveness among young learners.

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D. Research Instruments

The primary instrument for this study was a pre-test/post-test design used to measure students' letter recognition skills before and after the implementation of a play-based learning intervention, specifically the "Letter Jump Game." The assessment tool was adapted from the Letter Name and Letter Sound Assessment developed by Literacy Resources (2020).

The assessment consisted of two main components: lowercase and uppercase letter recognition. It included a total of 52 items, 26 lowercase letters and 26 uppercase letters. During the test, students were shown rows of letters and asked to identify the name of each letter as the researcher pointed to them. The test was administered one-on-one to each participant in a quiet, distraction- free environment to ensure accurate assessment of individual skills.

The instrument was administered twice: first as a pre-test to establish each student's baseline letter recognition ability and again as a post-test after the implementation of the Letter Jump Game intervention.

Additionally, the researchers utilized a play-based intervention known as the "Letter Jump Game." This game was conducted in a spacious, safe area where large letter cards were laid out on the floor. The researcher would call out a specific letter name or sound, and the child would physically jump to the correct letter. The activity was repeated multiple times with varying sequences to reinforce recognition and recall. The game was designed to be highly interactive and engaging, combining movement with learning. Each session lasted 45 minutes to 1 hour and was conducted over a three-week period.

Table 1: Level of Pre-Literacy Skills in Kindergarten Learners

Alphabet Knowledge	Pre-developing	Developing	Proficient
Alphabet Recognition: Uppercase Letters	0-5 Correct	6-19 Correct	20-26 Correct
Alphabet Recognition: Lowercase Letters	0-5 Correct	6-19 Correct	20-26 Correct

E. Data Gathering Procedure

The data-gathering procedure began with obtaining formal approval from the principal of Musuan Integrated School through a signed letter of permission, allowing the study to be conducted within the school premises. Informed consent forms were then distributed and signed by the relevant stakeholders, including the school principal, the assigned kindergarten teacher, and the parents or legal guardians of the participating pupils. These forms clearly explained the purpose, procedures, confidentiality measures, and voluntary nature of the study. Only pupils whose parents or guardians provided written consent were included in the research.

The data collection process involved several key stages. First, the pretest was administered individually to each participant in a quiet classroom setting. During this stage, the Letter Jump Game had not yet been introduced. The pretest used the adapted Letter Name and Letter Sound Assessment tool, which required pupils to identify both lowercase and uppercase letters as the researcher pointed to them. This assessment served to establish the learners' baseline letter recognition abilities.

Next, preparations for the intervention were carefully undertaken. The researchers created large letter cards using durable, colored materials for visibility and longevity. These were cut into uniform squares and labeled with uppercase and lowercase letters. The physical setup was arranged in a spacious area within the school, such as an open classroom space or activity area, ensuring both safety and sufficient room for movement. The layout of the letter cards was periodically changed to sustain pupil interest and engagement. The Letter Jump Game intervention was then introduced.

In collaboration with the assigned kindergarten teacher, the researchers explained the rules of the game in simple, age-appropriate language. During each session, the researcher (with the teacher's support) called out specific letter names or sounds, prompting the children to jump onto the correct letter card placed on the floor. Upon landing on a letter, each pupil was asked to say the letter name aloud. If a pupil struggled, the researcher provided gentle guidance or prompts. The intervention sessions were conducted three times per week over a three-week period, with each session lasting 45 minutes to 1 hour, ensuring consistent exposure and repetition for learning reinforcement.

Throughout the process, the researchers collaborated closely with the classroom teacher to organize and supervise both the pre- and post-tests, as well as the intervention sessions. This collaboration ensured the smooth facilitation of activities and helped maintain the regular classroom routine with minimal disruption.

After the three-week intervention period, a post-test identical to the pre- test was administered to the same group of participants. The procedure mirrored the initial testing process to maintain consistency. The goal was to measure any improvements in letter recognition resulting from the play-based intervention.

Following data collection, the researchers analyzed the results by comparing the pre-test and post-test scores of the participants. Statistical methods such as mean, standard deviation, and frequency distribution were used. A paired-sample t-test was conducted to determine the effectiveness of the intervention.

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Throughout the entire research process, ethical considerations were strictly observed. Participation was entirely voluntary, and pupils were free to withdraw at any time without consequence. All personal data and test results were treated with strict confidentiality and were used solely for academic purposes. Identifying information was excluded from final reports to protect participant privacy.

As a gesture of appreciation, the researchers provided age-appropriate snacks and refreshments to all participating pupils at the end of the study. This was done in collaboration with the class teacher and in compliance with school guidelines to ensure the health and safety of the children.

F. Statistical Treatment of Data

The collected data were analyzed using both descriptive and inferential statistical methods. Descriptive statistics, such as the mean, standard deviation, and frequency distribution, were used to summarize and present the data from the pre-test and post-test. These measures provided a general overview of the learners' performance before and after the intervention.

For inferential analysis, a paired samples t-test was employed. A paired samples t-test is a statistical method used to determine whether there is a significant difference between the means of two related groups, such as measurements taken before and after an intervention (Field, 2013). In this study, the same group of learners was assessed before and after the intervention. This test was appropriate as it allowed the researchers to determine whether the differences in scores from the pre-test to the post-test were statistically significant and not due to chance.

Specifically, the paired samples t-test was used to compare the mean scores of the pre-test and post-test results to evaluate the effectiveness of the Letter Jump Game in improving letter recognition.

G. Ethical Considerations

This research adhered to rigorous ethical standards to protect the rights and well-being of all participants. Before the study, informed consent was obtained from the school principal, teachers, and parents or guardians of participating students. Teachers received a comprehensive overview of the study's objectives, methods, potential risks, and benefits to ensure informed consent. Researchers ensured data were securely stored and used solely for the study, maintaining confidentiality and privacy. Participation was entirely voluntary, and individuals or their legal guardians could withdraw at any time without penalty.

Participants experienced no physical, psychological, or emotional harm; activities such as the "letter jump game" were age-appropriate, safe, and enjoyable. Ethical approval was obtained from the college's ethics committee prior to implementation. Finally, to protect participant privacy, all data were securely disposed of after the study. The study maintained the highest standards of ethical research practice, ensuring the well-being of all participants.

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CHAPTER FOUR
PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents, analyzes, and interprets the data collected in our study. This chapter aims to provide a comprehensive understanding of the results and their implications.

A. Level of Letter Recognition Skills of Kindergarten Learners Before and After the Intervention

Assess the level of kindergarten learners' letter recognition skills before and after the implementation of play-based learning interventions. The results are summarized in Tables 2, 3, and 4.

Table 2: Level of Lowercase Letter Recognition Skills of Kindergarten Learners Before and After the Intervention

Pre-Literacy Group	**Pre-Test**		**Post-Test**	
	N	**%**	**N**	**%**
Pre-Developing	2	13.33	2	13.33
Developing	11	73.34	9	60.00
Proficient	2	13.33	4	26.67
MEAN SCORE	12.33	Developing	14.47	Developing
Legend Score:	**Descriptive Level**			
0 – 5	Pre-Developing			
6 – 19	Developing			
20 - 26	Proficient			

The results in Table 2 illustrate the lowercase letter recognition skills of kindergarten learners before and after the intervention. The pre-test scores reveal that most learners were at the Developing level, with a mean score of 12.33. Notably, two learners were in the Pre-Developing category, indicating significant challenges in recognizing lowercase letters. While a few had already reached proficiency, many struggled, especially with letters that looked similar, like b, d, p, and q.

After implementing the Letter Jump Game, the post-test results show an increase in letter recognition performance, with a mean score rising to 14.47. Several learners who were initially in the Developing category demonstrated marked improvements, with three learners moving into the Proficient level. Despite some learners remaining in the Pre-Developing range, their scores increased, signifying progress at a slower rate.

Comparing pre-test and post-test scores, it's clear that play-based learning had a positive effect. The average score improved from 12.33 to 14.47, showing a steady increase in recognition skills. What's interesting is how much kinesthetic learners benefited, those who enjoyed movement showed greater improvement than others, suggesting that hands-on activities make a real difference in early literacy. Another pattern worth noting is that learners who struggled the most before showed the biggest improvement after the intervention. This supports the idea that interactive learning methods help engage students who may not respond well to traditional teaching strategies like flashcards or worksheets.

The findings confirm that play-based learning is not just fun, it's effective. The Letter Jump Game helped learners actively engage with letters, making it easier for them to remember and differentiate between them. This reflects Vygotsky's theory that children learn best when they interact with their environment and peers, as well as Piaget's idea that hands-on experiences help young learners build knowledge. Even more importantly, the study shows that learning doesn't have to be passive. Instead of just memorizing letters, children experienced them, they saw, touched, and moved with them, making the learning process much more memorable.

Previous research backs this up. Richland (2021) and Samson (2024) found that movement-based games like jumping to letters improve letter recognition and phonemic awareness. Similarly, Hirsh-Pasek et al. (2016) emphasized how multisensory learning approaches help sustain engagement and boost cognitive development. Moreover, findings from Bubikova-Moan et al. (2019) highlight that structured play is a highly effective tool for teaching literacy. Their studies show that young learners retain information better when they experience learning through interactive activities rather than passive memorization.

Table 3: Level of Uppercase Letter Recognition Skills of Kindergarten Learners Before and After the Intervention

Pre-Literacy Group	**N**	**Pre-Test %**	**N**	**Post Test %**
Pre-Developing	2	13.33	1	6.66
Developing	10	66.67	10	66.67
Proficient	3	20.00	4	26.67
Legend Score:	**Descriptive Level**			
0 – 5	Pre-Developing			
6 – 19	Developing			

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20 - 26	Proficient

The data in Table 3 presents the uppercase letter recognition skills of kindergarten learners before and after the intervention. Before implementing the Letter Jump Game, the pre-test scores indicate that most learners were within the Developing category, with an average score of 14.20. A few students exhibited proficiency in uppercase letter recognition, but some struggled, particularly those in the Pre-Developing level, where letter identification was noticeably weak.

Following the intervention, the post-test scores show a general improvement in uppercase letter recognition. The mean score increased to 15.47, with several learners displaying significant progress. Notably, one participant who started in the Pre-Developing range improved to a Developing level, while others in the Developing range moved closer to proficiency. These improvements suggest that the physical interaction and engagement of the Letter Jump Game contributed positively to letter recognition development.

Upon examining the pre-test and post-test results, a clear pattern emerges, learners who started with lower recognition scores benefited the most from the intervention, showing marked improvement. The increase in scores among learners within the Developing range suggests that interactive learning experiences helped solidify their letter recognition skills.

Interestingly, those who were already proficient maintained their high scores, reinforcing the idea that play-based learning enhances retention rather than solely focusing on improvement for struggling learners. The biggest jumps in scores came from students previously on the borderline between pre- developing and developing, indicating that the intervention was most effective for those needing extra reinforcement.

The results suggest that kinesthetic learning approaches, like the Letter Jump Game, can enhance uppercase letter recognition among kindergarten learners. The game's multi-sensory approach encourages children to actively engage with letters, reinforcing memory through physical movement. This aligns with Piaget's theory, which emphasizes hands-on experiences for constructing knowledge. Similarly, Vygotsky's Social Constructivism suggests that guided learning interactions help young learners progress. The findings confirm that learning through play not only increases accuracy but also strengthens long term retention.

Prior research supports the idea that movement-based learning fosters literacy skills. Richland (2021) and Samson (2024) found that physical engagement enhances letter retention and recall, much like what was observed in this study. Likewise, Hirsh-Pasek et al. (2016) highlight that multisensory learning approaches promote deeper cognitive processing, making letter recognition more effective. Additionally, Bubikova-Moan et al. (2019) stress the importance of structured play-based interventions, arguing that children develop stronger literacy skills when engaged in active learning environments. The results of this study further reinforce these findings, showing that movement-based activities positively impact letter recognition skills and early childhood literacy development.

Table 4: Overall Level of Letter Recognition Skills of Kindergarten Learners Before and **After the Intervention.**

	N	Minimum	Maximum	Mean	Std. Deviation	Interpretation N
Lower Case						
Pre-Test	15	2	24	12.33	6.42	Developing
Post Test	15	4	25	14.47	6.28	Developing
Upper Case						
Pre-Test	15	3	25	14.20	6.58	Developing
Post Test	15	4	25	15.27	6.05	Developing

Table 4 provides an overview of the letter recognition skills of kindergarten learners before and after the intervention. Both lowercase and uppercase letter recognition skills showed positive improvements following the implementation of the Letter Jump Game. The pre-test results indicate that, on average, learners were in the Developing level, with a mean score of 12.33 for lowercase letters and 14.20 for uppercase letters. After the intervention, the post-test results show an increase in mean scores to 14.47 for lowercase letters and 15.27 for uppercase letters, suggesting steady progress in letter recognition. The minimum scores increased slightly, which is a sign that learners who initially struggled improved, even if they didn't reach proficiency. The standard deviation also decreased, indicating greater consistency in performance among learners.

Comparing pre-test and post-test scores, the results indicate that play- based interventions positively impact letter recognition skills. The post-test mean scores increased across both lowercase and uppercase letter categories, demonstrating greater accuracy and retention after engaging with the Letter Jump Game. A noteworthy pattern is the overall consistency of improvement across all learners. While not every student reached proficiency, every participant showed some level of progress, whether minor or substantial. This suggests that interactive learning environments benefit a wide range of learners, including those struggling the most.

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The findings confirm that physical engagement enhances letter recognition. The Letter Jump Game encouraged learners to interact actively with letters, reinforcing visual recognition through movement-based learning. This aligns with Piaget's theory, which emphasizes that children learn through sensorimotor experiences, making the physical aspect of this intervention highly effective. Additionally, Vygotsky's Social Constructivism supports the idea that guided, play-based interactions foster stronger literacy development, which is evident in the post-test improvements.

Previous research supports these findings. Richland (2021) and Samson (2024) observed that play-based learning increases letter retention and phonemic awareness, much like what was seen in this study. Similarly, Hirsh- Pasek et al. (2016) highlight the benefits of multisensory learning approaches, reinforcing that movement-based literacy interventions improve cognitive processing. Additionally, Bubikova-Moan et al. (2019) emphasize the importance of structured play in early education, showing that children retain literacy skills more effectively when learning actively rather than passively. The improvements in this study further validate these findings, confirming that play- based strategies should be integrated into early literacy instruction to enhance learning outcomes.

B. Difference in Pretest and Posttest Scores on Lowercase and Uppercase Letter Recognition Before and After the Intervention

A play-based learning approach, specifically the Letter Jump Game, was implemented as an intervention. The effectiveness of this strategy was analyzed using pre-test and post-test scores for both lowercase and uppercase letters.

Table 5: Paired Samples Test of Pre-& Post Test (Lowercase)

Number of Leaners	Test Type	Mean	SD	Sig (2-Tailed)
15	Pre-Test	12.33	6.42	.254
15	Post test	14.47	6.29	

*Significant at 5%

Table 5 displays the Paired Samples t-Test results for lowercase letter recognition before and after the intervention. The pre-test mean score was 12.33, while the post-test mean increased to 14.47, indicating an overall improvement in recognition skills. However, the p-value (.254) is greater than the 5% significance level, meaning that the improvement observed is not statistically significant at this threshold.

While the increase in scores suggests positive learning progress, the lack of statistical significance indicates that the observed changes could have resulted from natural variations or external factors rather than the intervention alone. The standard deviation values (6.42 pre-test, 6.29 post-test) suggest some variability among learners, reflecting differences in individual progress. One possible reason for this outcome could be the relatively small sample size (N=15), which may have limited the ability to detect significant effects. Additionally, some learners may have needed more time or additional exposure to the Letter Jump Game for deeper improvements.

Despite the lack of statistical significance, the increase in mean scores indicates practical improvement, reinforcing the idea that play-based interventions help engage learners in letter recognition. While the effect size may not be large enough to meet the 5% significance threshold, the qualitative improvements observed, such as increased engagement and confidence, this suggest that interactive learning methods still hold educational value. These findings align with Piaget's theory of cognitive development, which emphasizes that young learners benefit from hands-on experiences, as well as Vygotsky's Social Constructivism, which highlights the importance of interactive play in skill acquisition.

Previous research supports the interpretation that the non-significant p- value ($p > .05$) is likely due to the small sample size, which limits the statistical power to detect moderate effects (Cohen, 2019). Nonetheless, the observed improvement in post-test scores suggests a practically meaningful gain. This aligns with existing research demonstrating the positive impact of play-based learning interventions on early literacy outcomes (Sakib, 2022; Samson, 2024), even in smaller-scale studies. Future research with a larger, more representative sample is essential to validate these results and explore the broader applicability of the Letter Jump Game.

Table 6: Paired Samples Test of Pre-& Post Test (Uppercase)

Number of Leaners	Test Type	Mean	SD	Sig (2-Tailed)
15	Pre-Test	14.20	6.58	.150
15	Post test	15.47	6.05	

*Significant at 5%

Table 6 presents the Paired Samples t-Test results for uppercase letter recognition before and after the Letter Jump Game intervention. The pre-test mean score was 14.20, which increased to 15.47 in the post-test, indicating a positive trend in letter recognition improvement. However, the p-value (.150) exceeds the 5% significance level, meaning that while progress was observed, the improvement was not statistically significant at this threshold.

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Although the mean score increased, the lack of statistical significance suggests that external factors or natural learning progression might have contributed to the results rather than the intervention alone. The standard deviation slightly decreased, indicating greater consistency in post-test scores, suggesting that learners performed more uniformly after the intervention. One possible explanation for the moderate effect size is the small sample size (N=15), which may have limited the ability to detect strong statistical significance. Additionally, some learners may have responded more favorably to the intervention, while others required additional exposure or alternative strategies to reinforce letter recognition.

Despite the lack of statistical significance, the increase in mean scores indicates practical improvement, which supports the effectiveness of play- based learning interventions in early literacy. While the results do not meet the strict p-value threshold, the observed gains suggest that interactive learning strategies contribute positively to letter recognition development. From a theoretical perspective, these findings align with Vygotsky's Social Constructivism, which highlights the importance of peer interaction and guided play, as well as Piaget's Theory of Cognitive Development, which emphasizes that physical engagement enhances learning retention.

Previous research affirms that movement-based literacy strategies improve retention and engagement. Richland (2021) and Samson (2024) highlight that interactive learning experiences, such as jumping between letters, promote recall and phonemic awareness, supporting the effectiveness of kinesthetic learning. Similarly, Hirsh-Pasek et al. (2016) found that multisensory educational approaches strengthen cognitive processing, which aligns with the observed post-test improvements. Furthermore, Bubikova-Moan et al. (2019) emphasize that structured play enhances literacy skill development, reinforcing the idea that play-based strategies should be incorporated into early childhood education for long-term benefits. While the statistical significance threshold was not met, the observed academic progress and engagement improvements suggest that kinesthetic learning strategies remain valuable for literacy instruction.

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CHAPTER FIVE
FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter presents the findings, conclusions, and recommendations in enhancing the kindergarten letter recognition level through play-based learning.

A. Findings

➢ *Using the study's data, these findings have been drawn:*

- The study examined the effectiveness of the Letter Jump Game, a play-based, kinesthetic learning intervention, in enhancing lowercase and uppercase letter recognition among kindergarten learners. For lowercase letters, pre-test results showed most learners were at the Developing level with a mean score of 12.33, while a few struggled significantly in the Pre-Developing category. After the intervention, the mean score rose to 14.47, with several learners progressing to the Proficient level. Notably, those who had the lowest scores showed the most improvement, and kinesthetic learners those who benefited from movement-based activities, demonstrated considerable gains. Similarly, uppercase letter recognition also improved, with pre-test scores averaging 14.20 and increasing to 15.47 in the post-test. Learners in the developing range showed significant progress, and those who were previously on the borderline of pre-developing improved notably. Proficient learners maintained their high scores, suggesting the game also supported long-term retention. In general, the results suggest that the Letter Jump Game positively influenced letter recognition abilities, especially for those who have difficulties and for kinesthetic learners. These results correspond with the theories of Vygotsky and Piaget, highlighting the significance of engaging, experiential learning. Previous studies back these results, showing that multisensory and movement-oriented approaches greatly improve early literacy growth.
- The results of the paired samples t-test revealed an increase in kindergarten learners' recognition of both lowercase and uppercase letters following the Letter Jump Game intervention. The mean scores improved from 12.33 to 14.47 for lowercase letters and from 14.20 to 15.47 for uppercase letters, indicating a positive trend in learning outcomes. These improvements suggest that the intervention may have supported letter recognition development. However, the p-values obtained (.254 for lowercase and .150 for uppercase) exceeded the 0.05 significance level, indicating that the gains were not statistically significant. This suggests that the improvements might have resulted from natural learning progression, random variation, or other external influences rather than the intervention alone. Several contributing factors may explain this result, including the small sample size (N = 15), which likely limited statistical power, and inconsistent attendance during the three-week period, which may have led to uneven exposure to the intervention. Additionally, individual differences in learning pace and responsiveness to kinesthetic activities could have influenced the outcomes. Nonetheless, the steady increase in mean scores and decreased variability in post-test performance point to practical benefits. Observations of increased learner engagement, participation, and enthusiasm further support the value of interactive, movement-based learning. These findings are also consistent with existing research and educational theories that emphasize the importance of physical and play-based experiences in early literacy development. While statistical significance was not achieved, the results underscore the potential of kinesthetic interventions like the Letter Jump Game and highlight the need for further studies with larger, more consistent samples to better assess their impact.

B. Conclusion

➢ *Based on the interpreted and analyzed results, the researchers conclude the following:*

- The Letter Jump Game effectively enhanced kindergarten learners' recognition of both uppercase and lowercase letters. The noticeable improvement in mean scores and learner progression from developing to proficient levels especially among initially struggling and kinesthetic learners, this indicates that this play-based, kinesthetic intervention supports early literacy development. This aligns with educational theories emphasizing experiential learning and multisensory approaches.
- Although there was a positive increase in letter recognition scores after the intervention, the changes were not statistically significant. This is likely due to the small sample size, inconsistent attendance, and individual learning differences. Nevertheless, the practical improvements, along with increased learner engagement and enthusiasm, suggest that kinesthetic, movement- based interventions like the Letter Jump Game hold promise. Further research with larger, more consistent samples is needed to conclusively determine the intervention's effectiveness.

The researchers conclude that the Letter Jump Game is a valuable tool for fostering letter recognition skills among kindergarten learners, particularly those who benefit from kinesthetic learning. While statistical significance was not attained, the positive trends and observed learner engagement underscore the potential of incorporating play-based, movement-oriented strategies in early literacy instruction. The researchers recommend expanding the study with a larger participant group and a longer intervention period to better evaluate and validate the effectiveness of the Letter Jump Game in supporting foundational literacy skills.

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C. Recommendations

➢ *The results and findings of the study lead to several recommendations for further research and action:*

- Teachers. It is recommended for teachers to incorporate the Letter Jump Game or similar play-based, kinesthetic learning activities into regular literacy instruction for kindergarten learners. This approach is especially beneficial for students who initially struggle with letter recognition, as well as for kinesthetic learners who thrive through movement-based learning. Teachers should be encouraged to use multisensory, experiential techniques to reinforce letter recognition, supporting both initial acquisition and long-term retention. Additionally, play-based learning strategies such as the Letter Jump Game may provide teachers with innovative approaches that go beyond traditional methods. In today's classrooms, where many learners prefer to move and engage actively, such strategies align well with students' natural tendencies to play and explore, making instruction more effective and engaging.
- Future Researchers. Further research is recommended due to the observed positive trends, despite the lack of statistical significance. Future studies should include larger sample sizes and ensure more consistent attendance to increase statistical power and the reliability of findings. Researchers are also encouraged to extend the intervention period to provide learners with more sustained exposure. Additionally, strategies should be implemented to increase learner participation and reduce absenteeism, ensuring all students benefit equally from the intervention.

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REFERENCES

[1]. Alotaibi, M. (2024). The impact of game-based learning on the cognitive skills, engagement, and motivation of young learners. Journal of Education and Learning, 19(2), 350-362. https://doi.org/10.11591/edulearn.v19i2.2127354

[2]. Brightwheel. (2024a, July 17). *A Guide to Game-Based Learning in Early Childhood Education.* A Guide to Game-Based Learning in Early Childhood Education. https://mybrightwheel.com/blog/game- based- learning

[3]. Blubaugh, C. (2023, December 6). *Letter recognition Strategies for Struggling Students*- Mrs. B's Beehive. Mrs. B's Beehive. https://mrsbsbeehive.com/letter-recognition-strategies/

[4]. Brodie, K. (2024, August 10). *Howard Gardner's Multiple Intelligences Theory*: A Guide for Early Years. Early Years TV. https://www.earlyyears.tv/howard- gardners-multiple-intelligences- theory-a-guide-for-early-years/

[5]. Bubikova-Moan, M., Wæraas, I. H., & Klette, K. (2019). How does the implementation of a play-based learning approach affect the learning environment and children's learning outcomes? International Journal of Early Childhood, 51(1), 5-17. https://doi.org/10.1007/s13193-018-0278-6

[6]. Cabug, V. M. E., & Hatague, K. V. (2023). PLAY BASED LEARNING: INTERVENTION IN IMPROVING LETTER SOUND RECOGNITION OF KINDERGARTEN LEARNERS. *Cognizance Journal of Multidisciplinary Studies*, *3*(8), 1074–1086. https://doi.org/10.47760/cognizance 2023.v03i08.030

[7]. Campbell, S. (2023, September 5). *Letter recognition: Activities for mastering letter names and letter sounds* - Campbell creates readers. Campbell Creates Readers. https://www.campbellcreatesreaders.com/blog/letter-recognition- activities-for-mastering-letter-names-and-letter-sounds

[8]. Cohen, S. (2019). The power of movement in learning. London: Jessica Kingsley Publishers.

[9]. Field, A. (2013). Discovering Statistics Using IBM SPSS Statistics (4th ed.). Sage Publications.

[10]. GUO, PU. (2024). Approaches to Enhance Game-Based Teaching Literacy for Kindergarten Major Students. Pacific International Journal.

[11]. Hirsh-Pasek, K., Golinkoff, R. M., & New, R. S. (2016). Einstein never used flashcards: How our children really learn—and why they need to play more. New York: Oxford University Press.

[12]. Longcamp, M., Zerbato-Poudou, M., & Velay, J. (2018). The influence of writing practice on letter recognition in preschool children: A comparison between handwriting and typing. Acta Psychologica, 119(1), 67–79. https://doi.org/10.1016/j.actpsy.2004.10.01

[13]. Majorano, M., Bastianello, T., Bodea-Hategan, C., Fantuzzi, P., Fontana, G., Hoste, E., Lombardi, M., Standaert, A., Talas, D., Trifu, R., Vescogni, L., & Persici, V. (2021). Early literacy skills and later reading and writing performance across countries: The effects of Orthographic Consistency and preschool curriculum. Child & Youth Care Forum, 50(6), 1063–1085.

[14]. McClelland, M. M., Azevedo, R., & Foorman, B. R. (2015). Handbook of early literacy research: Bridging the gap between research and practice. New York: Guilford Press.

[15]. Mercy, J. (2021). The challenges and benefits of play-based learning. Retrieved from https://www.earlychildhoodnews.com/earlychildhood/article_view.aspx? ArticleID=925

[16]. Nassis, G. (2022, February 21). The Importance of Game-Based Learning in a Child's Early Educational Development. The Importance of Game- Based Learning in a Child's Early Educational Development. https://www.newpathlearning.com/the- latest-news/the-importance-of- game-

[17]. Pakpahan, F. H., & Saragih, M. (2022). *Theory of Cognitive Development by Jean Piaget.* Journal of Applied Linguistics, 2(2), 55–6 0.https://doi.org/10.52622/joal.v2i2.79

[18]. Pica, P. (2017). Kinesthetic learning: Engaging the body to enhance learning. New York: Routledge.

[19]. Richland, K. (2021, August 9). Letter Sound Jump: An Orton-Gillingham game. *Structured Literacy | Pride Reading Program.*https://pridereadingprogram.com/letter-sound-jump-an-orton- gillingham

[20]. Reading Rockets. (n.d.). *Letter name and letter sound assessment.* Reading Rockets.https://www.readingrockets.org/sites/default/files/migrated/pdfs/assessment_letter_sound.pdf

[21]. Richland, K. (2021, August 9). Letter Sound Jump*: An Orton-Gillingham game.* Structured Literacy | Pride Reading Program. game/?srsltid=AfmBOooVHImk7SbMmtkpTGiYmzicdhZh8w71gM8d_0 hK8Gg go0s7Fu7A

[22]. St Laurent, C. W., Burkart, S., & Alhassan, S. (2018). Effect of a School- Base Physical Activity Intervention on number and letter recognition in preschoolers. International Journal of Exercise Science, 11(5), 168–178. https://doi.org/10.70252/zoxy6774

[23]. Samson, V. (2024b). *Alphabet Hop Play-Based Activity: A Kindergarten Intervention* for Letter Sound Recognition. Research Gate, 1–15.https://www.researchgate.net/publication/381376021_Alphabet_Hop_PlayBased_Activity_A_Kindergarten_Intervention_for_Letter_Sou nd_ Rec og nition

[24]. Sakib, N. (2022). *The Effect of Play-Based Learning on the Cognitive development of Kindergarten students.* Research Gate. https://www.researchgate.net/publication/369927516_The_Effect_of_Pl ayBased_Learning_on_the_Cognitive_Development_of_Kindergarten_ Students

[25]. Tahir, R., & Wang, A. I. (2022*). Evaluating the effectiveness of game-based learning for teaching refugee children Arabic using the integrated LEAGUÊ-GQM approach.* Behaviour & Information Technology, 43(1), 110–138. https://doi.org/10.1080/0144929X.2022.2156386

[26]. Vinter, A., Bard, P., Lukowski-Duplessy, H., & Poulin-Charronnat, B. (2023b). Learning to name uppercase and lowercase

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25may1755

letters in preschoolers and kindergarteners: An investigation of the effects of child- and letter- related factors. Early Education and Development, 35(7), 1570–1590. https://doi.org/10.1080/10409289.2023.2252706

[27]. Wibowo, S., Wangid, M. N., & Firdaus, F. M. (2024). *The relevance of Vygotsky'sconstructivism learning theory with the differentiated learning primary schools.* Journal of Education and Learning (EduLearn), 19(1), 431–440. https://doi.org/10.11591/edulearn.v19i1.21197

[28]. Zosh, J. M., Haring-Hidore, M. C., & Baer, J. (2017). Supporting emergent literacy: A practical guide for teachers (5th ed.). New York: Pearson.