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HOME LEARNING ENVIRONMENT (HLE) AND EARLY NUMERACY PERFORMANCE OF KINDERGARTEN LEARNERS: FOUNDATION FOR AN ENHANCED EARLY NUMERACY PROGRAM

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ABSTRACT

The home learning environment (HLE) played a crucial role in shaping early childhood education, particularly in fostering numeracy skills. A strong HLE was linked to better academic outcomes, making it essential to understand its impact on kindergarten learners' early numeracy performance. This study aimed to determine the HLE and early numeracy performance of Kindergarten learners in Felipe E. Estella Elementary School, Masinloc District, Schools Division of Zambales, during the School Year 2024–2025. The study employed a quantitative-descriptive design. Using universal sampling, 119 home learning facilitators and their corresponding kindergarten learners participated. Data were gathered using a validated researcher-designed questionnaire. The home learning facilitators were predominantly females aged 40–49, college graduates, with two children, cohabitant status, and a monthly family income of P20,000–P39,999, who typically spent less than an hour daily teaching numeracy. They frequently provided learning resources, activities, sessions, and support. Kindergarten learners demonstrated proficient numeracy skills in pattern recognition, understanding shapes, and number recognition but showed developing skills in comparing quantities. Significant differences in HLE were observed based on facilitators' age, sex, civil status, monthly family income, highest educational attainment, and daily hours spent teaching numeracy, except for the number of children. A strong positive correlation between HLE and early numeracy performance was found. The study highlighted the pivotal role of HLE and its significant correlation with numeracy skills development in young learners. An enhanced early numeracy program was developed to improve both HLE and learners' performance. The findings provided a foundation for targeted interventions to strengthen HLE practices and enhance numeracy skills in kindergarten learners. This underscored the importance of engaging home learning facilitators and equipping them with effective strategies for early education.

Keywords: Home Learning Environment, Early Numeracy Performance, Home Learning Facilitators, Kindergarten Learners, Enhanced Early Numeracy Program.

1. INTRODUCTION

The early years of a child's education are critical for developing foundational skills, particularly in numeracy, which significantly influence later academic success. The home learning environment (HLE) plays a vital role in shaping these early numeracy skills, as it encompasses the availability of educational resources, parental involvement, and activities that promote mathematical thinking. Understanding the connection between the HLE and the early numeracy performance of kindergarten learners is essential to identify gaps and areas for improvement in current educational practices. This study aims to assess the influence of the HLE on kindergarten learners' numeracy

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performance, serving as a basis for creating an enhanced early numeracy program that supports both home and school-based learning initiatives.

The existing body of research underscores the critical role of the HLE in shaping early numeracy skills among young learners. Studies by Dacles (2024) and Costa (2024) have highlighted the significant influence of the HLE on academic performance, noting that a conducive physical setup and the availability of learning resources can enhance motivation and learning outcomes. Murendo et al. (2024) and Volodina et al. (2024) further support this by emphasizing the impact of a quality HLE and its interplay with preschool experiences, leading to improved language and numeracy skills. Jeptoo et al. (2024) and Nkeiruka (2024) demonstrated that engaging home activities and integrating digital resources can foster core competencies in early learners. Additionally, studies by Barkhatova et al. (2024) and Zuo et al. (2024) underline the importance of self-regulated learning strategies and independent cognitive activities facilitated by the HLE. Collectively, these findings suggest that a supportive, resource-rich home environment is a pivotal factor in enhancing the early numeracy performance of kindergarten learners.

Moreover, several researchers have explored specific aspects of HLE that directly impact numeracy skills development. For instance, Libertus (2024) and Aprilia et al. (2024) indicated that parent-guided activities focusing on mathematical concepts significantly enhance early numeracy skills. This is consistent with findings from Muir et al. (2024) and Harpaz et al. (2024), which revealed that the quality of parental involvement in home learning, particularly during activities requiring problem-solving and pattern recognition, plays a crucial role in developing foundational numeracy skills. Studies like those by Salas (2024), Fatimah et al. (2024), and Vanhala et al. (2024) highlighted the impact of motor skills, assessment tools, and executive functions on numeracy performance, further showcasing the multifaceted nature of early mathematics development. These insights collectively underscore the importance of targeted, well-structured home learning activities that can bridge gaps in early numeracy instruction.

Despite the extensive research on the HLE's role in academic outcomes, there was a notable gap in understanding how specific elements of the HLE directly correlated with early numeracy performance in diverse kindergarten contexts. While previous studies had examined broader aspects of the HLE, such as language development and general academic skills, there was limited focus on targeted numeracy activities, particularly those that involved parental engagement and structured play. Additionally, existing research often overlooked the variability in HLE quality across different socioeconomic backgrounds, which could have significantly influenced early numeracy skills. Addressing this gap, the current study aimed to delve deeper into the specific components of the HLE that most effectively supported early numeracy, providing a foundation for designing a comprehensive, enhanced numeracy program that catered to diverse kindergarten learners.

2. STATEMENT OF THE PROBLEM

This study determined the HLE and early numeracy performance of Kindergarten learners in Felipe E. Estella Elementary School, Masinloc District, Schools Division of Zambales, during the School Year 2024-2025.

Specifically, it sought to answer these questions:

1. How may the profile of the home learning facilitators be described in terms of:
    1.1. age;
    1.2. sex;

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1.3. civil status;
1.4. number of children;
1.5. monthly family income;
1.6. highest educational attainment; and
1.7. daily number of hours spent teaching numeracy at home?

2. As perceived by the home learning facilitators, how may the HLE be described in terms of:
2.1. learning resources;
2.2. learning activities;
2.3. learning sessions; and
2.4. learning support?

3. How may the early numeracy performance of kindergarten learners be described in terms of:
3.1. pattern recognition;
3.2. comparing quantities;
3.3. understanding shapes; and
3.4. number recognition?

4. Is there a significant difference between the HLE as perceived by home learning facilitators and their profile when grouped accordingly?

5. Is there a significant correlation between the HLE as perceived by home learning facilitators and the early numeracy performance of kindergarten learners?

6. What enhanced early numeracy program can be developed to improve the HLE and early numeracy performance of kindergarten learners?

3. METHODS AND MATERIALS

This study determined the HLE and early numeracy performance of Kindergarten learners in Felipe E. Estella Elementary School, Masinloc District, Schools Division of Zambales, during the School Year 2024-2025. A quantitative-descriptive research design was employed, with data collected, classified, summarized, and analyzed using percentages and means. The study involved 119 home learning facilitators and 119 kindergarten learners came from a public elementary school, utilizing total population sampling to involve all home learning facilitators and kindergarten learners. A researcher-designed questionnaire served as the primary data collection tool, targeting dimensions of the HLE and early numeracy performance of Kindergarten learners. The instrument demonstrated excellent and good reliability, as confirmed by Cronbach's Alpha values for HLE ($\alpha = 0.94$) and early numeracy performance ($\alpha = 0.80$). Statistical analyses, including the Kruskal-Wallis Test and Spearman Rho Correlation, were used to test the study's hypotheses.

4. RESULTS AND DISCUSSIONS

4.1. Profile of Home Learning Facilitators

4.1.1. Age

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Table 1

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Age

Age	Frequency	Percentage
19 years old and below	2	1.68
20-29 years old	19	15.97
30-39 years old	29	24.37
40-49 years old	55	46.22
50-59 years old	12	10.08
60 years old and above	2	1.68
Total	**119**	**100.00**

Table 1 presents the frequency and percentage distribution of the profile of home learning facilitators in terms of age. The table showed that the highest percentage (46.22%) of facilitators fell within the 40-49 years old age range, with 55 individuals. Meanwhile, the age groups of 19 years old and below and 60 years old and above each had a frequency of 2, corresponding to 1.68% of the total facilitators.

These findings suggested that the majority of home learning facilitators were in the middle-aged group, indicating that this age range had been more likely to engage in home learning facilitation. This could have implied that older individuals had more time or experience to commit to these roles.

The present findings were consistent with the previous study of Finan and Landes (2024), which found that middle-aged adults were the most likely to be involved in educational facilitation. Additionally, Finan and Landes (2024) reported that younger and older age groups showed less participation, which aligned with the low frequencies observed in the 19 years old and below and 60 years old and above categories in the current data.

4.1.2. Sex

Table 2

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Sex

Sex	Frequency	Percentage
Male	36	30.25
Female	83	69.75
Total	**119**	**100.00**

Table 2 displays the frequency and percentage distribution of the profile of home learning facilitators in terms of sex. The table showed that the majority of facilitators were female, with 83 individuals, corresponding to 69.75%. Meanwhile, 36 facilitators were male, accounting for 30.25% of the total.

These findings suggested that home learning facilitation had been predominantly undertaken by females, which might have reflected gender roles or societal expectations in educational settings. This trend could also have indicated that women were more likely to engage in home-based learning support.

The findings aligned with the previous study of Suprawata and Riastini (2022), which reported a higher involvement of females in educational facilitation roles. Similarly, Suprawata

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and Riastini (2022) noted that males were less represented in such roles, which was consistent with the findings observed in the current data.

4.1.3. Civil Status

Table 3

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Civil Status

Civil Status	Frequency	Percentage
Single	7	5.88
Married	40	33.61
Cohabitant	48	40.34
Separated	12	10.08
Widow-Widower	12	10.08
Total	**119**	**100.00**

Table 3 illustrates the frequency and percentage distribution of the profile of home learning facilitators in terms of civil status. The table showed that the largest group of facilitators were cohabitants, with 48 individuals, corresponding to 40.34%. The next largest group were married facilitators, with 40 individuals, making up 33.61% of the total.

These findings suggested that a significant portion of home learning facilitators had been in committed relationships, whether married or cohabitant. This might have reflected the social structure of households involved in home learning facilitation.

The findings were consistent with the previous study of Dunatchik et al. (2021), which found that individuals in long-term relationships were more likely to participate in home learning facilitation. Additionally, Dunatchik et al. (2021) reported that fewer facilitators had been single or widowed, which aligned with the lower frequencies of these categories in the current data.

4.1.4. Number of Children

Table 4

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Number of Children

Number of Children	Frequency	Percentage
No child	2	1.68
1 child	12	10.08
2 children	58	48.74
3 children	33	27.73
4 children	9	7.56
5 children	4	3.36
6 children and above	1	0.84
Total	**119**	**100.00**

Table 4 shows the frequency and percentage distribution of the profile of home learning facilitators in terms of the number of children. The table showed that the largest group of facilitators had 2 children, with 58 individuals, accounting for 48.74%. In contrast, only 1 facilitator reported having 6 children or more, corresponding to 0.84% of the total.

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These findings suggested that home learning facilitators with 2 children had been the most common, which might have indicated that individuals with moderate family sizes were more likely to engage in home learning support. It also hinted at the potential influence of family size on one's availability to facilitate learning at home.

The findings aligned with the previous study of Canzi et al. (2021), which found that facilitators with 2 to 3 children had been the most prevalent group. Similarly, Canzi et al. (2021) observed that facilitators with larger families (4 or more children) were less likely to participate in home learning facilitation, which was consistent with the lower frequencies found in those categories in the current data.

4.1.5. Monthly Family Income

Table 5

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Monthly Family Income

Monthly Family Income	Frequency	Percentage
P19,999 and below	39	32.77
P20,000 to P39,999	53	44.54
P40,000 to P59,999	14	11.76
P60,000 to P79,999	11	9.24
P80,000 to P99,999	1	0.84
P100,000 to P119,999	1	0.84
Total	**119**	**100.00**

Table 5 exhibits the frequency and percentage distribution of the profile of home learning facilitators in terms of monthly family income. The table showed that the largest group of facilitators had a monthly family income ranging from P20,000 to P39,999, with 53 individuals, making up 44.54%. Meanwhile, 39 facilitators had a monthly family income of P19,999 and below, corresponding to 32.77% of the total.

These findings suggested that a significant portion of home learning facilitators came from families with moderate monthly incomes. This might have reflected the economic background of those more likely to participate in home learning facilitation roles.

The findings were consistent with the previous study of Jansen et al. (2021), which found that facilitators from middle-income families were more likely to engage in educational support roles. Additionally, Jansen et al. (2021) reported a lower participation rate among individuals from higher-income households, which aligned with the small percentages observed in the higher-income categories in the current data.

4.1.6. Highest Education Attainment

Table 6

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Highest Educational Attainment

Highest Educational Attainment	Frequency	Percentage
Elementary Undergraduate	1	0.84
Elementary Graduate	9	7.56
High School Graduate	32	26.89
College Graduate	56	47.06
MA Graduate	11	9.24

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EdD/PhD/DPA/DBA Graduate	10	8.40
Total	**119**	**100.00**

Table 6 depicts the frequency and percentage distribution of the profile of home learning facilitators in terms of highest educational attainment. The table showed that the largest group of facilitators were college graduates, with 56 individuals, corresponding to 47.06%. In contrast, the smallest group comprised elementary undergraduates, with just 1 individual, making up 0.84% of the total.

These findings suggested that home learning facilitators generally had higher levels of educational attainment, with the majority being college graduates. This might have reflected the qualifications often required to engage in educational roles or facilitate learning at home.

The findings aligned with the previous study of Bourke-Taylor et al. (2021), which reported that the majority of facilitators had at least a college degree. Similarly, Bourke-Taylor et al. (2021) found a lower representation of individuals with lower educational attainment, which was consistent with the small percentage of elementary undergraduates and high school graduates in the current data.

4.1.7. Daily Number of Hours Spent Teaching Numeracy at Home

Table 7

Frequency and Percentage Distribution of the Profile of Home Learning Facilitators in terms of Daily Number of Hours Spent Teaching Numeracy at Home

Daily Number of Hours Spent Teaching Numeracy at Home	Frequency	Percentage
Less than 1.0 hour	51	42.86
1.0 to 1.9 hours	30	25.21
2.0 to 2.9 hours	22	18.49
3.0 to 3.9 hours	13	10.92
4.0 to 4.9 hours	2	1.68
5.0 hours and above	1	0.84
Total	**119**	**100.00**

Table 7 summarizes the frequency and percentage distribution of the profile of home learning facilitators in terms of the daily number of hours spent teaching numeracy at home. The table showed that the largest group of facilitators, 51 individuals (42.86%), spent less than 1 hour per day teaching numeracy. In contrast, only 1 facilitator (0.84%) spent 5 or more hours per day teaching numeracy.

These findings suggested that most home learning facilitators allocated limited time for teaching numeracy, with the majority spending less than 1 hour daily. This might have reflected time constraints or priorities other than numeracy in the home learning process.

The findings were consistent with the previous study of Wright et al. (2023), which found that most facilitators spent less than 1 hour per day on academic instruction. Additionally, Wright et al. (2023) reported that fewer facilitators dedicated more than 2 hours daily to teaching numeracy, which aligned with the small percentages observed in the higher-hour categories in the current data.

4.2. HLE as Perceived by Home Learning Facilitators

4.2.1. Learning Resources

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Table 8

Mean Rating and Interpretations of HLE as Perceived by Home Learning Facilitators in terms of Learning Resources

Item	Indicators	Mean Rating	Interpretation
1	I use books, toys, and other materials to help my learner learn numbers.	2.66	Frequently Observed
2	I make sure we have paper and pencils for counting and writing numbers.	2.84	Frequently Observed
3	I provide my learner with objects like blocks or buttons to practice counting.	2.50	Frequently Observed
4	I use educational apps or videos to teach my learner about numbers and shapes.	2.71	Frequently Observed
5	I show my learner how to use a calendar to understand days, weeks, and months.	2.53	Frequently Observed
6	I keep learning materials like flashcards with numbers and shapes at home.	2.59	Frequently Observed
7	I use everyday items like coins to teach my learner how to count and add.	2.48	Seldom Observed
8	I read counting books with my learner to help them recognize numbers.	2.63	Frequently Observed
9	I create simple number games using items we have at home.	2.67	Frequently Observed
10	I prepare worksheets or printouts for my learner to practice writing numbers.	2.62	Frequently Observed
	General Mean Rating	**2.62**	**Frequently Observed**

The table presented is Table 8, which highlights the mean ratings and interpretations of the HLE as perceived by home learning facilitators in terms of learning resources. The mean ratings range from 2.48 to 2.84, with a general mean of 2.62, which is interpreted as "Frequently Observed." This suggests that, in general, home learning facilitators often provide learning resources for their learners.

The findings imply that while home learning facilitators frequently utilize various learning resources, there is room for improvement in the consistency of their use, particularly in the case of everyday items like coins. This could indicate the need for more diverse or frequent resource utilization to further enhance the learning experience.

The present findings align with the previous study of Easterbrook et al. (2022), where it was noted that the availability and use of learning resources significantly contributed to the learners' engagement in home learning. Similar to the current results, Easterbrook et al. (2022) found that frequent use of available materials such as books and educational tools positively influenced learning outcomes.

4.2.2. Learning Activities

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Table 9

Mean Rating and Interpretations of HLE as Perceived by Home Learning Facilitators in terms of Learning Activities

Item	Indicators	Mean Rating	Interpretation
1	I play simple counting games with my learner to help them count in sequence.	2.71	Frequently Observed
2	I create comparison activities like comparing the number of toys or fruits.	2.69	Frequently Observed
3	I teach simple number-finding games, like spotting numbers around the house.	2.62	Frequently Observed
4	I encourage my child to count household items like plates or spoons in the kitchen.	2.51	Frequently Observed
5	I create simple patterns using items like buttons or blocks to learn sequencing.	2.47	Seldom Observed
6	I set up measurement activities, like having my learner measure the width of the table using their hands.	2.39	Seldom Observed
7	We play simple subtraction and addition games using toys or fruits as examples.	2.56	Frequently Observed
8	I play number bingo with my learner to help them learn number recognition.	2.20	Seldom Observed
9	I organize price comparison activities when we play pretend store at home.	2.36	Seldom Observed
10	I encourage my learner to make a simple chart for counting items they see outside, like cars or birds.	2.54	Frequently Observed
	General Mean Rating	**2.51**	**Frequently Observed**

The table presented is Table 9, which documents the mean ratings and interpretations of the HLE as perceived by home learning facilitators in terms of learning activities. The mean ratings range from 2.20 to 2.71, with a general mean of 2.51, which is interpreted as "Frequently Observed." This indicates that home learning facilitators typically engage in various learning activities with their learners, although some activities are less frequent than others.

The findings suggest that while home learning facilitators often involve their learners in activities such as counting games and comparison activities, there is a need for more consistent use of certain activities, particularly those that involve measurement and price comparisons. These activities may require additional emphasis or support to ensure more frequent engagement.

The findings are consistent with the study of Tsai et al. (2021), where it was found that the use of interactive and engaging learning activities positively impacted learners' participation. Similar to the current study, Tsai et al. (2021) highlighted the value of simple and practical activities, such as counting and pattern-making, in supporting children's learning in a home setting.

4.2.3. Learning Sessions

Table 10

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Mean Rating and Interpretations of HLE as Perceived by Home Learning Facilitators in terms of Learning Sessions

Item	Indicators	Mean Rating	Interpretation
1	I help my learner set aside time for studying numbers every day.	2.71	Frequently Observed
2	I provide simple home games that enhance my learner's knowledge of numbers.	2.65	Frequently Observed
3	I observe my learner's progress whenever we study number concepts.	2.71	Frequently Observed
4	I offer various activities like counting household items to strengthen my learner's math skills.	2.66	Frequently Observed
5	I create a study schedule that helps my learner practice number skills regularly.	2.61	Frequently Observed
6	I encourage my learner to ask questions about numbers while we study.	2.68	Frequently Observed
7	I show my learner how to use toys to count and learn simple numbers.	2.69	Frequently Observed
8	I guide my learner in solving simple math problems like counting fruits on the table.	2.55	Frequently Observed
9	I recommend free online numeracy games to help my learner with their studies.	2.63	Frequently Observed
10	I teach simple methods to help my learner understand numbers more easily.	2.75	Frequently Observed
	General Mean Rating	**2.66**	**Frequently Observed**

The table presented is Table 10, which outlines the mean ratings and interpretations of the HLE as perceived by home learning facilitators in terms of learning sessions. The mean ratings range from 2.55 to 2.75, with a general mean of 2.66, which is interpreted as "Frequently Observed." This suggests that home learning facilitators frequently engage in structured learning sessions to support their learners' understanding of numbers.

The findings imply that while home learning facilitators consistently organize study sessions, there is an opportunity to increase the variety and depth of activities, particularly in areas like solving math problems. More frequent exposure to diverse learning methods could further enhance the learners' numeracy skills.

Additionally, the findings correlate with the previous study of Cotterell (2021), which emphasized the importance of routine and structured learning sessions in promoting academic progress. Similar to the current results, Cotterell (2021) found that frequent interactions, such as providing opportunities for question-asking and regular study sessions, significantly improved learners' retention and understanding of key concepts.

4.2.4. Learning Support

Table 11

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Mean Rating and Interpretations of HLE as Perceived by Home Learning Facilitators in terms of Learning Support

Item	Indicators	Mean Rating	Interpretation
1	I help my learner understand numeracy concepts through simple explanations.	2.73	Frequently Observed
2	I provide real-life examples to help my learner better understand numbers.	2.68	Frequently Observed
3	I praise my learner when I see them putting effort into numeracy tasks.	2.79	Frequently Observed
4	I adjust the support I provide based on my learner's ability and needs in studying numbers.	2.72	Frequently Observed
5	I use various methods such as drawing and using toys to assist my learner with numeracy.	2.71	Frequently Observed
6	I teach my learner to ask questions and seek solutions when they struggle with numbers.	2.72	Frequently Observed
7	I dedicate my time to help my learner practice number skills daily.	2.70	Frequently Observed
8	I provide resources like books and online games to support my learner's numeracy learning.	2.64	Frequently Observed
9	I attend to my learner's needs for materials that help in their study of numbers.	2.76	Frequently Observed
10	I encourage my learner to keep practicing even when they find numeracy tasks challenging.	2.76	Frequently Observed
	General Mean Rating	**2.72**	**Frequently Observed**

The table presented is Table 11, which details the mean ratings and interpretations of the HLE as perceived by home learning facilitators in terms of learning support. The mean ratings range from 2.64 to 2.79, with a general mean of 2.72, which is interpreted as "Frequently Observed." This indicates that home learning facilitators often provide significant support to their learners in understanding numeracy concepts.

The findings suggest that home learning facilitators actively assist their learners by offering personalized explanations, real-life examples, and praise, which contribute to a positive learning environment. However, there is potential to further enhance the support by exploring additional resources or methods to cater to learners with varying needs.

Moreover, the findings are consistent with the study of Rachmadhani and Kamalia (2023), where it was found that targeted learning support, such as adjusting methods based on learners' abilities, significantly improved learning outcomes. Similar to the current study, Rachmadhani and Kamalia (2023) emphasized that consistent encouragement and the use of diverse support strategies were key to boosting learners' engagement and success in learning numeracy.

4.3. Early Numeracy Performance of Kindergarten Learners

Table 12

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Mean Rating and Interpretations of the Early Numeracy Performance of Kindergarten Learners

Early Numeracy Performance	Mean	Interpretation
Pattern Recognition	2.52	Proficient Numeracy Skills
Comparing Quantities	2.48	Developing Numeracy Skills
Understanding Shapes	2.55	Proficient Numeracy Skills
Number Recognition	2.55	Proficient Numeracy Skills
General Mean Rating	**2.53**	**Proficient Numeracy Skills**

Table 12 explores the mean ratings and interpretations of the early numeracy performance of Kindergarten learners. The mean ratings for the various early numeracy performance areas ranged from 2.48 to 2.55, with the general mean rating being 2.53. The general interpretation of these results is "Proficient Numeracy Skills."

The findings implied that the majority of Kindergarten learners demonstrated proficient numeracy skills, with slight variation in their performance in different areas. It highlighted the overall effectiveness of early numeracy instruction in developing essential skills among young learners.

These findings were consistent with the previous study by Nur et al. (2022), which indicated that Kindergarten learners generally exhibited proficient skills in numeracy tasks. Similar to the current findings, Nur et al. (2022) also found that areas like pattern recognition and number recognition were key strengths in early numeracy development.

4.4. Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile

4.4.1. Age

Table 13

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Age

Groups	*MR*	*Eta squared (η^2)*	*H*	*df*	*P*	Decision
19 years old and below	40.25	.50 (Large)	28.20	5	.000	Reject H_{01} (Significant)
20-29 years old	89.61					
30-39 years old	67.91					
40-49 years old	45.35					
50-59 years old	67.96					
60 years old and above	39.00					

Table 13 examines the difference between the HLE as perceived by home learning facilitators and their profile in terms of age. It displays the ranges of the mean ranks (MR), the values for eta squared (η^2), h, df, p-value, decision, and interpretation. The eta squared values ranged from .498 for the 19 years old and below group, indicating a large effect size, with a significant p-value of .000 leading to the rejection of the null hypothesis (H_{01}).

The highest MR value of 89.61 corresponded to the 20-29 years old group, suggesting that this age group perceived the HLE differently than others. The eta squared value of .50 for the 20-

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29 years old group indicated a large effect, emphasizing the significance of the age factor in perceptions of the HLE.

The findings implied that age played a critical role in how home learning facilitators perceived the HLE, with significant differences observed across age groups. The result highlighted the importance of considering age when assessing the HLE in future studies and practices.

The present findings supported the results of Zhang et al. (2021), which similarly showed that age significantly influenced perceptions of educational environments. Zhang et al. (2021) found comparable effect sizes and patterns, reinforcing the notion that age-related factors should be prioritized in educational assessments. This alignment with previous research further validated the comprehensiveness of the current study's conclusions.

4.4.2. Sex

Table 14

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Sex

Groups	*MR*	*Eta squared (η^2)*	*H*	*df*	*p*	Decision
Male	37.56	.42	22.42	1	.000	Reject H_{01}
Female	69.73	(Large)				(Significant)

Table 14 analyzes the difference between the HLE as perceived by home learning facilitators and their profile in terms of sex. It displays the ranges of the mean ranks (MR), the values for eta squared (η^2), h, df, p-value, decision, and interpretation. The eta squared value of .42 indicated a large effect size, and with a p-value of .000, the null hypothesis (H_{01}) was rejected, signifying that the differences in perceptions of the HLE based on sex were statistically significant.

The highest MR value of 69.73 corresponded to females, suggesting that female home learning facilitators perceived the HLE differently from their male counterparts. The eta squared value of .42 reflected a large effect size, highlighting the significant role of sex in shaping perceptions of the HLE.

The findings implied that sex influenced the way home learning facilitators perceived the HLE, with a significant difference between male and female facilitators. This underlined the need to consider sex as a relevant factor when assessing the HLE in future research and practice.

The findings echoed the results of Schultz-Jones et al. (2021), which also identified significant differences in perceptions based on sex. Schultz-Jones et al. (2021) similarly found a large effect size and significant results, reinforcing the understanding that sex plays a critical role in shaping perceptions of educational contexts. This connection between the current and previous studies further solidified the findings of the present research.

4.4.3. Civil Status

Table 15

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Civil Status

Groups	*MR*	*Eta squared (η^2)*	*H*	*df*	*p*	Decision
Single	75.93	.50	18.73	4	.001	Reject H_{01}

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Married	67.54	(Large)	(Significant)
Cohabitant	60.60		
Separated	21.67		
Widow/Widower	61.50		

Table 15 interprets the difference between the HLE as perceived by home learning facilitators and their profile in terms of civil status. It displays the ranges of the mean ranks (MR), the values for eta squared (η^2), h, df, p-value, decision, and interpretation. The eta squared value of .496 indicated a large effect size, and with a p-value of .001, the null hypothesis (H_{01}) was rejected, suggesting that civil status significantly influenced the perceptions of the HLE.

The highest MR value of 75.93 was observed in the single group, indicating that single home learning facilitators perceived the HLE more distinctly compared to the other civil status groups. The eta squared value of .50 confirmed a large effect size, highlighting the significance of civil status in shaping facilitators' perceptions of the HLE.

The findings implied that civil status played an essential role in influencing the perceptions of home learning facilitators regarding the HLE. This suggested that civil status should be considered when analyzing the HLE in future studies or in designing tailored educational interventions.

The findings aligned with the results of Karpava (2021), which also revealed significant differences in perceptions based on civil status. Karpava (2021) reported a similar pattern in terms of effect size and significance, further supporting the idea that civil status influences teachers' perceptions of learning environments. These similarities between the current and previous studies strengthened the reliability of the research outcomes.

4.4.4. Number of Children

Table 16

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Number of Children

Groups	H	df	P	Decision
No child	5.45	6	.488	Accept H_{01}
1 child				(Not Significant)
2 children				
3 children				
4 children				
5 children				
6 children and above				

Based on the table, Table 16 provides the difference between the HLE as perceived by home learning facilitators and their profile in terms of the number of children. The values of h ranged from 5.45, with a df of 6 and a p value of .488. The decision was to accept the null hypothesis (H_{01}), indicating that the result was not statistically significant.

The findings suggest that the number of children in a home learning facilitator's profile did not have a significant impact on their perception of the HLE. This implies that the number of children did not contribute to differences in perceived learning environments among facilitators.

The findings aligned with the conclusions of Merkley et al. (2023), which also found that factors such as the number of children did not significantly affect the perceptions of home learning

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facilitators. This further confirmed that demographic factors like the number of children had limited influence on the HLE in similar studies.

4.4.5. Monthly Family Income

Table 17

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Monthly Family Income

Groups	*MR*	*Eta squared (η^2)*	*H*	*df*	*p*	Decision
P19,999 and below	87.09	.65	46.13	5	.000	Reject H_{01}
P20,000 to P39,999	47.06	(Large)				(Significant)
P40,000 to P59,999	28.18					
P60,000 to P79,999	68.50					
P80,000 to P99,999	71.50					
P100,000 to P119,999	30.00					

Table 17 includes the difference between the HLE as perceived by home learning facilitators and their profile in terms of monthly family income. It displays the ranges of the mean ranks (MR), the values for eta squared (η^2), h, df, p-value, decision, and interpretation. The eta squared value of .65 indicated a large effect size, and with a p-value of .000, the null hypothesis (H_{01}) was rejected, signifying that monthly family income significantly influenced the perceptions of the HLE.

The highest MR value of 87.09 corresponded to the group with a monthly family income of P19,999 and below, suggesting that home learning facilitators in this income group perceived the HLE more significantly than those in other income brackets. The eta squared value of .65 confirmed a large effect size, highlighting the substantial impact of monthly family income on perceptions of the HLE.

The findings implied that monthly family income played a crucial role in shaping home learning facilitators' perceptions of the HLE. This emphasized the importance of considering income levels when assessing the learning environment, as it may influence how facilitators engage with the educational process.

The findings were consistent with those of Murphy et al. (2021), which also observed significant differences in perceptions based on income levels. Murphy et al. (2021) found similar large effect sizes and patterns, reinforcing the conclusion that financial status is a key factor in shaping educational perceptions. This alignment with previous research added credibility to the current study's results.

4.4.6. Highest Educational Attainment

Table 18

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Highest Educational Attainment

Groups	*MR*	*Eta squared (η^2)*	*H*	*df*	*P*	Decision

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Elementary Undergraduate	52.00	.68 (Large)	44.96	5	.000	Reject H_{01} (Significant)
Elementary Graduate	71.33					
High School Graduate	85.75					
College Graduate	52.80					
MA Graduate	10.91					
EdD/PhD/DPA/DBA Graduate	63.65					

Table 18 features the difference between the HLE as perceived by home learning facilitators and their profile in terms of highest educational attainment. It displays the ranges of the mean ranks (MR), the values for eta squared (η^2), h, df, p-value, decision, and interpretation. The eta squared value of .68 indicated a large effect size, and with a p-value of .000, the null hypothesis (H_{01}) was rejected, signifying that the highest educational attainment of home learning facilitators significantly influenced their perceptions of the HLE.

The highest MR value of 85.75 was observed in the high school graduate group, suggesting that home learning facilitators with a high school education perceived the HLE more distinctly compared to other educational attainment groups. The eta squared value of .68 confirmed a large effect size, highlighting the considerable impact of educational attainment on the facilitators' perceptions of the HLE.

The findings implied that the highest educational attainment of home learning facilitators played a significant role in shaping their perceptions of the HLE. This suggested that the educational background of facilitators should be considered in future research and interventions related to the learning environment.

The findings were consistent with the results of Davis-Kean et al. (2021), which also found significant differences in perceptions based on educational attainment. Davis-Kean et al. (2021) similarly reported large effect sizes and significant differences, further supporting the idea that educational level affects perceptions of the learning environment. This similarity with previous studies reinforced the validity of the current research's conclusions.

4.4.7. Daily Number of Hours Spent Teaching Numeracy at Home

Table 19

Difference Between the HLE as Perceived by Home Learning Facilitators and Their Profile in terms of Daily Number of Hours Spent Teaching Numeracy at Home

Groups	*MR*	*Eta squared (η^2)*	*H*	*df*	*p*	Decision
Less than 1.0 hour	54.48	.39 (Large)	12.20	5	.032	Reject H_{01} (Significant)
1.0 to 1.9 hours	73.58					
2.0 to 2.9 hours	47.20					
3.0 to 3.9 hours	74.00					
4.0 to 4.9 hours	61.75					
5.0 hours and above	30.00					

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Table 19 presents the difference between the HLE as perceived by home learning facilitators and their profile in terms of the daily number of hours spent teaching numeracy at home. It displays the ranges of the mean ranks (MR), the values for eta squared (η^2), h, df, p-value, decision, and interpretation. The eta squared value of .39 indicated a large effect size, and with a p-value of .032, the null hypothesis (H_{01}) was rejected, indicating that the daily number of hours spent teaching numeracy at home significantly influenced the perceptions of the HLE.

The highest MR value of 74.00 was observed in the group that spent 3.0 to 3.9 hours teaching numeracy, suggesting that facilitators in this group perceived the HLE more significantly than those in other time brackets. The eta squared value of .39 emphasized the substantial impact of the number of hours spent teaching numeracy on perceptions of the HLE.

The findings implied that the amount of time home learning facilitators spent teaching numeracy at home influenced their perceptions of the HLE. This highlighted the importance of time allocation in home teaching practices, which may affect how facilitators engage with the learning environment.

The findings were in line with the results of Sonnenschein and Stites (2021), which also found significant differences in perceptions based on the amount of time spent on teaching activities. Sonnenschein and Stites (2021) similarly observed a large effect size, reinforcing the idea that time spent on teaching subjects such as numeracy affects teachers' perceptions of the learning environment. This consistency between the present and past findings supported the comprehensiveness of the research outcomes.

4.5. Correlation Between the HLE as Perceived by Home Learning Facilitators and the Early Numeracy Performance of Kindergarten Learners

Table 20

Correlation Between the HLE as Perceived by Home Learning Facilitators and the Early Numeracy Performance of Kindergarten Learners

Dependent Variables	r	p	Interpretation	Decision
Pattern Recognition	.75	.000	Positive Strong Correlation	Reject H_{02} (Significant)
Comparing Quantities	.72	.000	Positive Strong Correlation	Reject H_{02} (Significant)
Understanding Shapes	.77	.000	Positive Strong Correlation	Reject H_{02} (Significant)
Number Recognition	.76	.000	Positive Strong Correlation	Reject H_{02} (Significant)
Overall	**.78**	**.000**	**Positive Strong Correlation**	**Reject H_{02} (Significant)**

Table 20 displays the correlation between the HLE as perceived by home learning facilitators and the early numeracy performance of kindergarten learners. The table revealed that all the dependent variables, including Pattern Recognition, Comparing Quantities, Understanding Shapes, and Number Recognition, exhibited a positive strong correlation with HLE, as indicated by the correlation coefficients (r) ranging from .72 to .78, all with a p-value of .000. The decision was to reject the null hypothesis (H_{02}) for all variables, which suggested that the correlations were statistically significant.

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The findings implied that a positive HLE significantly contributed to improving the early numeracy performance of kindergarten learners. This underscores the importance of supportive home environments in fostering early mathematical skills.

These results were consistent with the previous findings of Lehrl et al. (2021), which indicated a strong positive relationship between HLEs and early academic achievements in young learners. Both studies highlighted the critical role of home-based support in enhancing children's learning outcomes, particularly in foundational skills like numeracy.

4.6. An Enhanced Early Numeracy Program on Improving the HLE and Early Numeracy Performance of Kindergarten Learners

An enhanced early numeracy program aims to address gaps in home learning facilitation by strengthening facilitators' skills, improving resource access, and providing structured support to boost kindergarten learners' numeracy skills. With most facilitators being 40–49 years old, predominantly female, and facing time constraints, tailored training and flexible schedules are necessary to enhance their effectiveness. Socioeconomic and educational disparities impact HLE, requiring financial assistance, targeted professional development, and structured interventions to ensure inclusivity. Limited teaching time and inconsistent schedules hinder learner progress, emphasizing the need for structured learning sessions, engaging activities, and improved resource distribution. Strengthening HLE through tailored strategies, diagnostic tools, and holistic support systems will empower facilitators, enhance learner outcomes, and create a sustainable foundation for early numeracy development.

5. CONCLUSIONS

1. The home learning facilitators, predominantly female and aged 40 to 49 years, were college graduates with cohabitant status, two children, a monthly family income of P20,000 to P39,999, and typically spent less than an hour teaching numeracy at home.
2. Home learning facilitators frequently monitored their home learning environment, focusing on learning resources, activities, sessions, and support.
3. The Kindergarten learners demonstrated proficient early numeracy performance in pattern recognition, understanding shapes, and number recognition, while showing developing performance in comparing quantities; overall, their early numeracy performance was proficient.
4. There was a significant difference between the home learning environment as perceived by home learning facilitators and their profile in terms of age, sex, civil status, monthly family income, highest educational attainment, and daily hours spent teaching numeracy at home; however, no significant difference was found in relation to the number of children.
5. There was a strong positive and significant correlation between the home learning environment as perceived by home learning facilitators and the early numeracy performance of Kindergarten learners in pattern recognition, comparing quantities, understanding shapes, and number recognition, with p-values less than the significance level of .05, leading to the rejection of the null hypothesis.
6. An enhanced early numeracy program was developed aimed to improve the HLE and early numeracy performance of Kindergarten learners.

6. RECOMMENDATIONS

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1. Home learning facilitators should allocate more time to teaching numeracy at home to further support their children's early numeracy development.
2. Home learning facilitators should continue to regularly monitor and enhance their home learning environment by incorporating diverse and engaging learning resources, activities, and support strategies.
3. Kindergarten teachers and home learning facilitators should focus on targeted interventions to strengthen learners' skills in comparing quantities while maintaining proficiency in other numeracy skills.
4. Schools and educational stakeholders should design personalized training programs for home learning facilitators to address the specific needs related to their profile, such as age, educational attainment, and available time for teaching.
5. Home learning facilitators should optimize their home learning environment by implementing evidence-based practices shown to enhance early numeracy skills, as the quality of the environment is strongly linked to learners' performance.
6. The enhanced early numeracy program should be implemented in collaboration with schools and home learning facilitators to improve both the home learning environment and the early numeracy performance of Kindergarten learners.
7. Further studies on the relationship between the specific components of the HLE and various aspects of early numeracy performance should be conducted to refine and enhance intervention programs.

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REFERENCES

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Aprilia, Y. U., Rohmah, A. M. N., Amalia, A. N., Rosadah, H. A., Wulandari, P., Sunardi, A. D., Putri, R. S. A., & Indrasetianingsih, A. (2024). Socialization of parenting management in supporting children's learning at home by parents. *PengabdianMu Jurnal Ilmiah Pengabdian Kepada Masyarakat*, *9*(2), 196–204. https://doi.org/10.33084/pengabdianmu.v9i2.5766

Barkhatova, D., Khegay, L., Pak, N., & Narchuganov, K. (2024). Software-instrumental environment for creating cognitive learning tools. *AIP Conference Proceedings*, *3033*, 040006. https://doi.org/10.1063/5.0181807

Bourke-Taylor, H. M., Grzegorczyn, S., & Joyce, K. S. (2021). Peer mentor training: Pathway to competency for facilitators of Healthy Mothers Healthy Families workshops. *Child Care Health and Development*, *47*(5), 575–587. https://doi.org/10.1111/cch.12865

Canzi, E., Danioni, F. V., Parise, M., Lopez, G., Ferrari, L., Ranieri, S., Iafrate, R., Lanz, M., Regalia, C., & Rosnati, R. (2021). Perceived changes in family life during COVID-19: The role of family size. *Family Relations*, *70*(5), 1303–1311. https://doi.org/10.1111/fare.12579

Costa, A. R. (2024). The physical dimensions of the home learning environment and its impact on young people's learning motivations. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186x.2024.2322862

Cotterell, D. (2021). Is there still a place for teacher-led learning routines in the Australian primary school classroom? *Journal of Applied Learning & Teaching*, *4*(2). https://doi.org/10.37074/jalt.2021.4.2.4

Dacles, N. N. (2024). Home learning environments and reading levels of grade 4 learners: Bases for enhanced home-based reading program. *International Journal of Education Humanities and Social Science*, *07*(03), 344–371. https://doi.org/10.54922/ijehss.2024.0720

Davis-Kean, P. E., Tighe, L. A., & Waters, N. E. (2021). The role of parent Educational Attainment in parenting and children's development. *Current Directions in Psychological Science*, *30*(2), 186–192. https://doi.org/10.1177/0963721421993116

Dunatchik, A., Gerson, K., Glass, J., Jacobs, J. A., & Stritzel, H. (2021). Gender, parenting, and the rise of remote work during the pandemic: Implications for domestic inequality in the United States. *Gender & Society*, *35*(2), 194–205. https://doi.org/10.1177/08912432211001301

Easterbrook, M. J., Doyle, L., Grozev, V. H., Kosakowska-Berezecka, N., Harris, P. R., & Phalet, K. (2022). Socioeconomic and gender inequalities in home learning during the COVID-19 pandemic: examining the roles of the home environment, parent supervision, and educational provisions. *The Educational and Developmental Psychologist*, *40*(1), 27–39. https://doi.org/10.1080/20590776.2021.2014281

Fatimah, A., Setyosari, P., Kuswandi, D., & Praherdhiono, H. (2024). Development and validation of assessment tools for literacy and numeracy skills in early childhood education. *International Journal of Advanced and Applied Sciences*, *11*(5), 200–208. https://doi.org/10.21833/ijaas.2024.05.022

Finan, J. M., & Landes, S. D. (2024). Educational attainment and perceived need for future ADL assistance. *Journal of Applied Gerontology*, *43*(7), 922–932. https://doi.org/10.1177/07334648241227716

Harpaz, G., Grinshtain, Y., & Yaffe, Y. (2024). "Who's the Student at Home?": Parental Help-Giving Orientation in Learning at Home Predicted using a Parent's Personal Characteristics. *Education Sciences*, *14*(3), 246. https://doi.org/10.3390/educsci14030246

ISSN: 2582-0745
Vol. 8, No. 02; 2025

Jansen, D., Elffers, L., & Jak, S. (2021). A cross-national exploration of shadow education use by high and low SES families. *International Studies in Sociology of Education*, *32*(3), 653–674. https://doi.org/10.1080/09620214.2021.1880332

Jeptoo, E., Nyatuka, B., & Pacho, T. (2024). Home Learning and Achievement of Core Competencies among Learners in Public Primary Schools in Nandi County. *Research Journal of Education Teaching and Curriculum Studies*, *2*(1), 35–44. https://doi.org/10.58721/rjetcs.v2i1.617

Karpava, S. (2021). The effect of the family type and home literacy environment on the development of literacy skills by Bi-/Multilingual children in Cyprus. *Languages*, *6*(2), 102. https://doi.org/10.3390/languages6020102

Lehrl, S., Linberg, A., Niklas, F., & Kuger, S. (2021). The Home Learning Environment in the Digital Age—Associations between Self-Reported "Analog" and "Digital" Home Learning Environment and Children's Socio-Emotional and Academic Outcomes. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.592513

Libertus, M. E. (2024). Parent-Focused interventions to support children's early math learning. *Current Directions in Psychological Science*, *33*(1), 3–9. https://doi.org/10.1177/09637214231212806

Merkley, R., Sernoskie, E., Cook, C. J., Howard, S. J., Makaula, H., Mshudulu, M., Tshetu, N., Draper, C. E., & Scerif, G. (2023). "We don't have things for counting": An exploration of early numeracy skills and home learning experiences of children growing up in poverty in South Africa. *Journal of Numerical Cognition*, *9*(2), 268–284. https://doi.org/10.5964/jnc.8061

Murphy, Y. E., Zhang, X., & Gatzke-Kopp, L. (2021). Early executive and school functioning: Protective roles of home environment by income. *Journal of Applied Developmental Psychology*, *78*, 101369. https://doi.org/10.1016/j.appdev.2021.101369

Muir, T., Muir, B., Hicks, D., Beasy, K., & Murphy, C. (2024). Learning from home during COVID-19: primary school parents' perceptions of their school's management of the home-learning situation. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186x.2024.2308414

Murendo, C., Azemi, Z., Oo, T. Z., Arlini, S. M., Chanbona, M., Fermin, R., Shrestha, N., Sadat, S. M., Kimani, E., & Bosco, K. (2024). Teachers' well-being, home learning environment and children learning outcomes in emergencies: a case of Afghanistan. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186x.2024.2335839

Nkeiruka, N. N., I. (2024). Fostering digital resources in home economics education for national development and sustainability. *Nigeria Journal of Home Economics (ISSN 2782-8131)*, *12*(9), 1–7. https://doi.org/10.61868/njhe.v12i9.269

Nur, I. R. D., Herman, T., & Dahlan, T. H. (2022). Numeracy Literacy in Early Childhood: An investigation in Arithmetic, Geometry and patterns in Early stage. *JTAM (Jurnal Teori Dan Aplikasi Matematika)*, *6*(2), 308. https://doi.org/10.31764/jtam.v6i2.7007

Rachmadhani, S. A. D., & Kamalia, P. U. (2023). Analysis of differential learning strategies on student learning outcomes: A systematic literature review. *ASATIZA Jurnal Pendidikan*, *4*(3), 178–192. https://doi.org/10.46963/asatiza.v4i3.1231

Salas, G. G. B. (2024). Unraveling The Relationship Between Kindergartners' Fine Motor Skills with Their Numeracy Skills. *British Journal of Multidisciplinary and Advanced Studies*, *5*(1), 169–179. https://doi.org/10.37745/bjmas.2022.0432

ISSN: 2582-0745
Vol. 8, No. 02; 2025

Schultz-Jones, B., Ledbetter, C., & Bishop, J. (2021). Investigating differences between male and female students' perceptions of school library learning environments. *IASL Annual Conference Proceedings*. https://doi.org/10.29173/iasl7867

Sonnenschein, S., & Stites, M. L. (2021). The effects of COVID-19 on young children's and their parents' activities at home. *Early Education and Development*, *32*(6), 789–793. https://doi.org/10.1080/10409289.2021.1953311

Suprawata, I. G., & Riastini, P. N. (2022). Gender and Educational Level: Analysis of Elementary school teacher numerical skills. *Jurnal Ilmiah Sekolah Dasar*, *6*(2), 236–243. https://doi.org/10.23887/jisd.v6i2.42501

Tsai, C., Ku, H., & Campbell, A. (2021). Impacts of course activities on student perceptions of engagement and learning online. *Distance Education*, *42*(1), 106–125. https://doi.org/10.1080/01587919.2020.1869525

Vanhala, A., Widlund, A., Korhonen, J., Haapala, E. A., Sääkslahti, A., & Aunio, P. (2024). Developmental associations of fundamental motor skills and executive functions in preschoolers — The role of the physical activity and the effects on early numeracy. *Trends in Neuroscience and Education*, *34*, 100220. https://doi.org/10.1016/j.tine.2024.100220

Volodina, A., Lehrl, S., & Weinert, S. (2024). The impact of early home learning environment and preschool quality on School-Relevant Language Proficiency in Primary School. *Journal of Research in Childhood Education*, *38*(3), 502–525. https://doi.org/10.1080/02568543.2023.2301102

Wright, T. S., Bruner, L., Cummings, A., & Strunk, K. O. (2023). Understanding K-3 teachers' literacy instructional practices during the Pandemic-Impacted 2020–2021 school Year. *Reading Research Quarterly*, *59*(1), 124–146. https://doi.org/10.1002/rrq.523

Zhang, X., Lau, C., & Su, Y. (2021). Home Environment and Development of English as a Second/Foreign Language for Young Children in Asian Contexts: A Systematic Review and Meta-analysis*. *Early Education and Development*, *34*(1), 274–305. https://doi.org/10.1080/10409289.2021.1981065

Zuo, M., Zhong, Q., Wang, Q., Yan, Y., Liang, L., Gao, W., & Luo, H. (2024). Supporting Home-Based Self-Regulated Learning for Secondary School Students: An Educational Design study. *Sustainability*, *16*(3), 1199. https://doi.org/10.3390/su16031199