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Parental Engagement and its Influence on the Literacy and Numeracy Skills of Young Learners: A Basis for Educational Intervention

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ABSTRACT: *This study examined the influence of parental involvement on the literacy and numeracy skills of preschool learners at Labangon BLISS Elementary School, Cebu City, for school year 2024–2025. Using a descriptive-correlational design, the study measured parents' engagement in school activities and assessed learners' skills in alphabet knowledge, phonological awareness, book and print knowledge, numbers, identifying attributes, and thinking skills. Results showed a very high level of parental involvement and strong learner performance, particularly in alphabet knowledge, phonological awareness, and numeracy skills. However, book and print knowledge had more learners at the intermediate level. Correlation analysis revealed no significant relationship between parental involvement and learners' literacy and numeracy scores. Findings highlight the need to align parental support with school-based strategies to enhance early learning outcomes.*

Key words*: Alphabet knowledge, literacy skills, numeracy skills, parental involvement, preschool learners.*

1. Introduction

Parental involvement is widely recognized as a key influence on preschool children's emergent literacy and numeracy outcomes, especially in early domains such as alphabet knowledge, phonological awareness, print knowledge, number sense, and thinking skills. A comprehensive model of parent involvement emphasizes that home-based activities like shared reading, alphabet and number play, growth-mindset messages, and autonomy support foster academic motivation and school readiness across cultures (Froiland et al., 2021). Complementary evidence from Asia shows that the home literacy and numeracy environment, including parents' beliefs, attitudes, and frequency of literacy/numeracy activities, is strongly associated with preschoolers' skills (Huang et al., 2021). A longitudinal UK-based study found that interactive code-focused literacy experiences at home significantly predicted growth in counting and number transcoding skills even controlling for baseline abilities (Soto-Calvo et al., 2021). In addition, Filipino families participating in an online parent-coaching intervention in Cebu demonstrated measurable improvements in children's language, literacy, and numeracy outcomes Finally, meta-analytic findings confirm that higher parental engagement is generally positively associated with mathematics performance across grade levels (Otani et al., 2023).

Within the Filipino context, emerging local research underscores the importance of both home-based engagement and school-parent collaboration. Children in low- to middle-income communities in the

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Philippines showed strong associations between home numeracy resources, parents' own numeracy activity, and early mathematical performance (Cheung et al., 2021). Moreover, an online parent coaching program in Cebu City delivered via remote platforms improved preschoolers' emergent literacy (alphabet, phonological awareness, print knowledge) and numeracy skills through structured parental engagement. Across broader Asian settings, systematic reviews have shown that richer home literacy and numeracy environments, informed by parents' beliefs and regular topical practices, significantly enhance early literacy and numeracy development (Huang et al., 2021) Frontiers. These studies highlight the relevance of exploring parents' involvement in the Labangon BLISS Elementary School setting in Cebu City, as a basis for designing targeted educational interventions in the 2024–2025 school year context.

Studies in global datasets such as TIMSS reinforce that parental engagement and preschool attendance work together to amplify early math outcomes. Using TIMSS 2019 data from 52 countries, found that a one-unit increase in the parental engagement index corresponded to a 0.58 to 0.85 point gain in math scores for children with one to two years of preschool experience (Responsive early childhood parenting, 2025). This suggests that parental involvement does not substitute for preschool, but rather strengthens its effects especially relevant in contexts where preschool exposure may vary. Parallel international meta-analyses further show that different types of parental involvement (e.g. autonomy-supportive vs controlling) have differential impact sizes on academic performance, moderated by age and evaluation content (Otani et al., 2023) PMC. Thus, the present study aims to quantify the level of parents' involvement in school and home, and how it correlates with foundational literacy and numeracy skills among Filipino preschoolers.

Socio-economic context and parental education levels moderate the effects of involvement on children's outcomes. A Chinese study with 388 preschoolers found that family income and maternal education significantly moderated the relationship between parent-child literacy activities and children's literacy achievement, while paternal education did not have the same effect (Rahman et al., 2024). Similarly, meta-analyses show that children from lower SES families may derive less benefit from parental involvement if quality supports are lacking (Nguyen et al., 2020) PMC. Research on home numeracy environments also underscores that parental attitudes including math anxiety affect both the quantity and quality of home numeracy activities, which in turn shape children's numeracy development (Huang et al., 2021). These findings justify exploring how SES, parent education, and beliefs affect parental involvement patterns among families at Labangon BLISS Elementary.

Focusing specifically on early numeracy domains, evidence demonstrates that parents' understanding of early math development is linked to more frequent and complex numeracy activities at home, supporting children's number recognition, attribute differentiation, and thinking skills. Longitudinal studies from the UK show that interactive code-focused literacy activities predict not only counting but also higher-order numeracy skills, independent of language and cognitive ability (Soto-Calvo et al., 2021). In Asia, home numeracy studies confirm that games, counting tasks, and pattern-based activities delivered by parents are positively associated with preschoolers' early mathematics outcomes (Huang et al., 2021). The Labangon study will target numeracy sub-domains: numbers, attributes, and thinking skills, and investigate whether parental involvement predicts performance in these areas.

Taken together, Bronfenbrenner's ecological systems framework offers a useful lens for understanding how parental involvement in family and school microsystems, influenced by socio-economic and cultural contexts, shapes children's emergent literacy and numeracy skills (Fatonah, 2018). Qualitative work in Indonesia emphasized that tangible parental literacy support involves providing media, structured activities, and school-family collaboration through meetings and coordinators (Fatonah, 2018) researchgate.net. In the Philippines, parent coaching delivered online in Cebu demonstrated that structured parental involvement leads to improvements across literacy and numeracy domains. The present research at Labangon BLISS Elementary therefore aims to assess (1) levels of parental involvement in school activities, (2) preschoolers' literacy (alphabet, phonological awareness, print knowledge) and numeracy (numbers, attribute, thinking skills), and (3) to develop an actionable intervention plan grounded in empirical data and best practice frameworks.

2. Literature Review

2.1. Parental Engagement in Emergent Literacy and Home Literacy Environments

Recent scholarship emphasizes that parental involvement in emergent literacy including shared reading, letter and sound play, and fostering print awareness is foundational for preschoolers' literacy development. For

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example, a qualitative case study in Indonesia found parents actively use media, literacy-rich surroundings, and structured activities, and that collaboration with schools further enhances these practices (Fatonah, 2020). A broader Asia-wide review underscores that home literacy environments comprising parental beliefs, attitudes, resources, and frequency of literacy activities are positively correlated with children's early literacy across diverse cultural settings (Cheung et al., 2021). Additionally, studies of parent engagement during COVID-19 show that technology-mediated shared reading and storytelling maintained or even enhanced emergent literacy outcomes during disruptions to formal schooling (PMC, 2023). These findings align with comprehensive theoretical work, which points out that parental expectations and beliefs strongly predict home-based literacy involvement when aligned with supportive school practices (Froiland et al., 2020). Finally, research with preschool teachers during the pandemic highlights that sustained home teacher partnerships enabled parents to support literacy learning more effectively through practical engagement strategies (Ercan et al., 2021).

2.2. Parental Support of Early Numeracy and Home Numeracy Practices

Parental involvement also plays a pivotal role in early numeracy: engaging children in counting, number recognition, comparison of attributes, and reasoning tasks at home has been positively associated with emergent numeracy skills. A longitudinal study in the UK demonstrated that interactive code-focused literacy experiences predict children's counting and number transcoding abilities even when controlling for cognitive skills (Soto-Calvo et al., 2021) showing the cross-over effect of literacy support on numeracy outcomes. In Malaysia, survey data from 327 parents with preschool-aged children indicated moderate to high parental knowledge and attitude toward child numeracy, but a need for better instructional guidance for optimal learning support at home (Ghazali et al., 2021). The broader Asia review also demonstrated significant positive associations between the availability of home numeracy resources, the frequency of numeracy-focused activities, and children's emergent mathematics learning including in the Philippines (Cheung et al., 2021). Moreover, parents' own attitudes toward reading and math were found to shape how they engage their children in those domains, directly influencing children's learning interests in numeracy and literacy (Chen et al., 2024).

3. Methodology

This study used a descriptive-correlational research design to find out how parents' involvement affects the literacy and numeracy skills of preschool learners at Labangon BLISS Elementary School for the school year 2024–2025. The descriptive part was used to clearly describe the current level of parental involvement and the learners' literacy and numeracy skills. The correlational part was used to check if there is a connection between how involved the parents are and how well their children perform in literacy and numeracy. This design was chosen because it does not change any variables but only observes and analyzes what is already happening in the school. To collect the data, two main tools were used. The first was the Parental Involvement Survey Questionnaire, which asked parents about their participation in school activities, support for home learning, and communication with teachers. The second tool was the Literacy and Numeracy (LitNum) Assessment Tool to measure the children's alphabet knowledge, phonological awareness, print knowledge, number recognition, attributes, and thinking skills. The respondents were 2 teachers and 92 parents of preschool learners, chosen because they were directly involved in teaching and supporting the children. The data collected from the questionnaires and assessments were analyzed using simple statistics like percentages, weighted means, and Pearson correlation to see patterns and relationships. The results were then used to create an action plan to help improve parental involvement and support better literacy and numeracy outcomes for the learners.

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4. Results and Discussion

Table 1. Level of Parent's Involvement towards the School Activities of the Learners.

S/N	Indicators	WM	SD	Verbal Description
1	I make sure that my child acts in accordance with his/her study schedule and study at home.	4.55	0.56	Very High
2	I make sure that my child has a comfortable space for learning.	4.61	0.51	Very High
3	I always talk to my child about his/her daily activities.	4.65	0.48	Very High
4	I guide my child when performing household chores.	4.48	0.58	Very High
5	I examined my child's homework.	4.52	0.54	Very High
6	I make sure that my child has enough reference books, stationery, and other educational necessities.	4.27	0.59	Very High
7	I make sure that a learning environment with less noise from the television/radio when my child studies his/her lessons.	4.23	0.68	Very High
8	I send my children to extra classes held at school.	3.89	0.90	High
9	I send my son to paid tuition.	3.20	1.11	Moderate
10	I always talk with my child about his/her problems.	4.52	0.58	Very High
	Aggregate Weighted Mean	4.29		
	Aggregate Standard Deviation		0.65	Very High

The results in Table 1 show that the overall level of parents' involvement in their children's school activities is very high, with an aggregate weighted mean of 4.29. Most parents strongly agreed that they support their child's learning by providing a comfortable study space (WM = 4.61), talking about daily activities (WM = 4.65), guiding them in chores (WM = 4.48), checking homework (WM = 4.52), and ensuring they have books and other materials (WM = 4.27). Parents also reported creating a quiet learning environment at home (WM = 4.23) and regularly talking with their child about personal problems (WM = 4.52). Slightly lower scores were seen in sending children to extra classes at school (WM = 3.89, High) and especially in paying for private tuition (WM = 3.20, Moderate), which may reflect financial or resource limitations. These results suggest that most parents are highly engaged in supporting learning at home, particularly in providing guidance, materials, and emotional support, while fewer rely on paid external tutoring.

Table 2. Level of literacy skills of the learners in terms of Alphabet Knowledge.

Level	f	%
Advanced	90	97.83
Intermediate	2	2.17
Beginner	0	0.00
Total	92	100.00

Table 2 shows that most of the preschool learners have a very strong level of alphabet knowledge. Out of 92 learners, 90 learners or 97.83% are in the Advanced level, while only 2 learners or 2.17% are in the Intermediate level. None of the learners were classified as Beginner. This means almost all the children can already recognize and understand the alphabet well, which is a strong foundation for early reading and writing. The results suggest that both home and school efforts in teaching alphabet knowledge are effective, and only a very small number of learners may need additional support to reach the advanced level.

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Table 3. Level of literacy skills of the learners in terms of Phonological Awareness.

Level	f	%
Advanced	79	85.87
Intermediate	13	14.13
Beginner	0	0.00
Total	92	100.00

Table 3 indicates that the majority of the preschool learners have a high level of phonological awareness. Out of 92 learners, 79 learners or 85.87% are classified as Advanced, while 13 learners or 14.13% are at the Intermediate level. None of the learners were in the Beginner category. This shows that most children can already recognize and work with sounds in words, which is a key skill for learning to read. However, the presence of some learners at the intermediate level suggests that additional activities like rhyming games or sound blending exercises could help strengthen the phonological skills of those who are not yet advanced.

Table 4. Level of literacy skills of the learners in terms of Book and Print knowledge.

Level	f	%
Advanced	56	60.87
Intermediate	33	35.87
Beginner	3	3.26
Total	92	100.00

Table 4 shows that most preschool learners have a good level of book and print knowledge, but there is more variation compared to other literacy areas. Out of 92 learners, 56 learners or 60.87% are at the Advanced level, while 33 learners or 35.87% are in the Intermediate level. Only 3 learners or 3.26% fall under the Beginner category. This means a majority of the children understand how books and printed text work, such as reading direction and recognizing parts of a book. However, the higher number of learners in the intermediate and beginner levels suggests that more practice in handling books and understanding print concepts is needed to ensure all learners reach an advanced level.

Table 5. Level of numeracy skills of the learners in terms of Numbers.

Level	f	%
Advanced	90	97.83
Intermediate	2	2.17
Beginner	0	0.00
Total	92	100.00

Table 5 reveals that preschool learners demonstrate a very high level of numeracy skills in terms of numbers. Out of 92 learners, 90 learners or 97.83% are in the Advanced level, while only 2 learners or 2.17% are at the Intermediate level. None of the learners were classified as Beginner. This indicates that almost all the children can already recognize, count, and understand numbers effectively, which is a strong foundation for early math development. The results suggest that both classroom instruction and home support are effective in building number skills, with only a very small group of learners needing additional reinforcement to reach the advanced level.

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Table 6. Level of numeracy skills of the learners in terms of Identifying Attributes.

Level	f	%
Advanced	92	100.00
Intermediate	0	0.00
Beginner	0	0.00
Total	92	100.00

Table 6 shows that all preschool learners have an advanced level of skill in identifying attributes. Out of 92 learners, 100% are in the Advanced category, with none falling under Intermediate or Beginner. This

means every child can successfully recognize and differentiate attributes such as color, shape, and size, which are essential for developing classification and comparison skills in early mathematics. The results indicate that teaching strategies and home reinforcement for identifying attributes are highly effective, as all learners have mastered this area of numeracy.

Table 7. Level of numeracy skills of the learners in terms of Thinking Skills.

Level	f	%
Advanced	92	100.00
Intermediate	0	0.00
Beginner	0	0.00
Total	92	100.00

Table 7 shows that all preschool learners have an advanced level of thinking skills. Out of 92 learners, 100% are in the Advanced category, with none classified as Intermediate or Beginner. This indicates that every child can already demonstrate early problem-solving, reasoning, and logical thinking abilities appropriate for their age. The results suggest that both classroom activities and home support are very effective in developing critical thinking skills among the learners, making this one of the strongest areas of their numeracy development.

Table 8. Test of relationship between the Parental Involvement and Literacy Skills of the Learners.

Parental Involvement VS:	r-value	Strength of Correlation	p - value	Decision	Remarks
Alphabet Knowledge	-0.086	Negligible Negative	0.417	Do not reject Ho	Not Significant
Phonological Awareness	-0.053	Negligible Negative	0.614	Do not reject Ho	Not Significant
Book and Print Knowledge	0.038	Negligible Positive	0.722	Do not reject Ho	Not Significant

Note: *significant at p<0.05 (two-tailed).

Table 8 shows the results of the test on the relationship between parental involvement and the literacy skills of the learners. The findings indicate that there is no significant relationship between parental involvement and any of the literacy skill areas. For alphabet knowledge, the r-value is -0.086, showing a negligible negative correlation with a p-value of 0.417, which is not significant. For phonological awareness, the r-value is -0.053, also a negligible negative correlation with a p-value of 0.614, indicating no significant relationship. For book and print knowledge, the r-value is 0.038, showing a negligible positive correlation with a p-value of 0.722, which is also not significant. Since all p-values are higher than 0.05, the null hypothesis is not rejected. This suggests that, based on the data collected, the level of parental involvement does not have a measurable effect on the literacy skills of the preschool learners in this study.

Table 9 presents the results of the test on the relationship between parental involvement and the numeracy skills of the learners. The analysis shows that there is no significant relationship between parental involvement and any of the numeracy skill areas. For numbers, the r-value is -0.087, indicating a negligible negative correlation with a p-value of 0.409, which is not significant. For identifying attributes, the r-value is -0.020, also a negligible negative correlation with a p-value of 0.853, showing no significant relationship. For thinking skills, the r-value is 0.033, a negligible positive correlation with a p-value of 0.755, which is also not significant. Since all p-values are greater than 0.05, the null hypothesis is not rejected. This means that in this study, the level of parental involvement does not show a measurable effect on the numeracy skills of the preschool learners.

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Table 9. Test of relationship between the Parental Involvement and Numeracy Skills of the Learners.

Parental Involvement VS:	r-value	Strength of Correlation	p - value	Decision	Remarks
Numbers	-0.087	Negligible Negative	0.409	Do not reject Ho	Not Significant
Identifying Attributes	-0.020	Negligible Negative	0.853	Do not reject Ho	Not Significant
Thinking Skills	0.033	Negligible Positive	0.755	Do not reject Ho	Not Significant

Note: *significant at p<0.05 (Two-Tailed).

5. Discussion

The findings of the study reveal that parental involvement among the respondents is generally very high, as shown by the aggregate weighted mean of 4.29. Parents actively participate in their children's learning by providing a conducive study environment, guiding homework, and engaging in regular conversations about school and personal matters. This suggests that the home environment is supportive of education, which aligns with studies emphasizing that active parental engagement fosters better attitudes and readiness for learning among preschoolers. However, areas such as enrolling children in extra classes and paid tuition received lower ratings, which may reflect economic constraints or a stronger reliance on home-based learning support rather than external tutoring. In terms of literacy, the results show that the preschool learners are performing strongly, particularly in alphabet knowledge and phonological awareness, where a large majority are at the advanced level. These are critical predictors of reading success, indicating that both school instruction and parental guidance are effective in developing these early literacy skills. However, the relatively lower performance in book and print knowledge, with 35.87% at the intermediate level and 3.26% at the beginner level, highlights a gap. This suggests that while children are learning letters and sounds effectively, there is a need for more exposure to handling books and understanding print concepts, possibly through more shared reading and guided book activities at home and school. For numeracy, the results indicate that learners have very strong skills in numbers, identifying attributes, and thinking skills, with most learners achieving advanced levels. Particularly notable is the 100% advanced rating in identifying attributes and thinking skills, which suggests that activities focused on classification, pattern recognition, and problem-solving are being effectively implemented in both home and school contexts. The strong foundation in numbers also suggests that children are well-prepared for more complex mathematical concepts as they progress to higher levels.

Despite these positive outcomes in both literacy and numeracy, the correlation tests revealed no significant relationship between parental involvement and learners' performance in either domain. The r-values for all literacy and numeracy skills were negligible, and the p-values exceeded 0.05, indicating that the level of parental involvement measured in this study did not directly influence the children's assessed skills. This result could mean that other factors, such as the quality of classroom instruction, peer interaction, or intrinsic learner abilities, play a more dominant role in skill development at this stage. It may also indicate that while parents are highly involved, their engagement might not always align with instructional strategies needed to directly impact literacy and numeracy outcomes. These findings highlight two important insights. First, the generally high literacy and numeracy performance shows that the combined efforts of school and home are supporting early learning effectively. Second, the lack of significant correlation suggests that parental involvement alone is not a guarantee of higher academic performance unless it is aligned with targeted educational practices. This underscores the need for schools to guide parents on specific strategies for supporting literacy and numeracy at home, such as structured book reading sessions, sound manipulation games, and hands-on math activities. Strengthening school-home collaboration and providing parents with practical, evidence-based techniques could make their involvement more impactful in improving specific learning outcomes.

6. Conclusion

The study showed that parents at Labangon BLISS Elementary School have a very high level of involvement, actively supporting their children's learning at home. Preschool learners demonstrated strong literacy and numeracy skills, especially in alphabet knowledge, phonological awareness, numbers, and

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thinking skills. However, book and print knowledge had more learners at the intermediate level, showing a need for improvement. Results also revealed no significant relationship between parental involvement and learners' scores, suggesting that other factors like teaching strategies and learner readiness affect performance. This means parental support is valuable but must align with classroom practices. Strengthening collaboration between teachers and parents can make home activities more effective in improving early literacy and numeracy development.

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