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THE RELATIONSHIP BETWEEN TECHNOLOGY DEVICE USAGE AND EARLY LITERACY DEVELOPMENT OF KINDERGARTEN LEARNERS IN DINGALAN AURORA

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ABSTRACT

This study examined the relationship between technology device usage and early literacy development among kindergarten learners in Dingalan, Aurora, addressing the need to understand how digital exposure influences foundational literacy skills in early childhood education. The study specifically determined the Extent of technology device usage in terms of type of device, frequency of use, duration of screen time, type of digital content accessed, and level of parental supervision, as well as the level of early literacy development in terms of letter recognition, phonological Awareness, vocabulary development, and listening comprehension. A descriptive-correlational research design was employed, involving parent-respondents whose data were collected through validated survey questionnaires and analyzed using descriptive statistics and Spearman's rho. Findings revealed that technology device usage among kindergarten learners was generally at an "often" level, while early literacy development was moderately developed overall, with letter recognition as the strongest domain. However, results showed a weak positive but statistically nonsignificant relationship between technology device usage and early literacy development. Based on the findings, a Guided Technology-Integrated Early Literacy Enhancement Framework was developed to support parents and teachers in optimizing digital learning for young learners. The study highlights the importance of guided and supervised technology use in early literacy development.

KEYWORDS: *Technology Device Usage, Early Literacy Development, Kindergarten Learners, Parental Supervision, Digital Learning, Dingalan Aurora*

I. INTRODUCTION

1.1. Background of the Study

Modern technologies continue to populate children's educational environments, offering the potential to improve early literacy through educational applications, digital stories, interactive games, and multimedia materials. Modern technologies have the potential to create dynamic, flexible learning environments that could help young children develop reading skills. According to a systematic review of 67 studies, modern technologies may assist young children's early literacy acquisition, but their effectiveness depends on technological, implementation, and learning-related factors (Bautista et al., 2024). Consequently, the right technology must be chosen for the development process.

Technology integration in kindergarten may support early literacy development by providing opportunities to learn letters, sounds, words, and stories through educational applications, digital books, interactive games, and multimedia resources. When utilized effectively, technology use may help early literacy abilities such as vocabulary, phonological awareness, letter knowledge, and language comprehension. But children's access to technology is only part of the equation; it's also about how they are used. Adult engagement is particularly crucial. A comprehensive review and meta-analysis of 17 studies with 1,288 children revealed that the co-use of digital media by adults and children was positively and significantly associated with children's learning.

Although digital devices are becoming widely available to young children, few studies have explored the relationship between specific patterns of technology use and various elements of early literacy, especially in rural Philippine settings. Much of the existing information has been derived from contexts worldwide, with little localized evidence for kindergarten learners in Dingalan, Aurora, the focus of this study. This gap highlights the need to investigate technology use, taking into account the social and educational conditions of the local population.

Despite growing evidence on children's technology use, screen time, digital content, and parental supervision, limited research has examined their simultaneous relationship with multiple dimensions of early literacy, particularly letter recognition, phonological awareness, vocabulary development, and listening comprehension. This gap is particularly evident among kindergarten learners in rural Philippine communities, including Dingalan, Aurora. Therefore, the present study examines the relationship between technology device usage and early literacy development among kindergarten learners in selected public elementary schools in Dingalan, Aurora. The findings may provide useful information for teachers, parents, and school administrators in promoting appropriate technology use to support early literacy development.

1.2 Statement of the Problem

This study aims to determine the relationship between technology device usage and early literacy development among kindergarten learners in Dingalan, Aurora.

1. What is the profile of the parent-respondents in terms of age, educational attainment, and occupation?
2. What is the composite mean on the Extent of technology device usage among kindergarten learners in terms of type of device, frequency of use, duration

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of screen time, type of digital content accessed, and level of parental supervision?

3. What is the composite mean on the level of early literacy development of kindergarten learners in terms of letter recognition, phonological awareness, vocabulary development, and listening comprehension?
4. Is there a significant relationship between technology device usage and early literacy development of kindergarten learners in Dingalan, Aurora?

1.3 Hypotheses

1. H_{01}: There is no significant relationship between technology device usage and early literacy development of kindergarten learners in Dingalan, Aurora.

1.4 Scope and Delimitation of the Study

This research is done to find out the relationship between the usage of digital gadgets by kindergarten children and the early literacy development of the students enrolled in two public elementary schools in Dingalan, Aurora, known as Tanawan Elementary School and Dingalan Central School, for the school year 2026-2027. It will include the profiles of the respondents, such as age, occupation, and the parents' educational background; the use of technology, such as the type of gadget, frequency of use, screen time exposure, digital media consumption, and parental monitoring; and early literacy skill development.

Desktop computers and radios were not included in the survey, which was restricted to cellphones, tablets, laptops, and televisions. Socioeconomic position, home literacy environment, language background, printed reading resources, teachers' instructional approaches, and learners' cognitive traits are other factors that could affect early literacy but were omitted. The results might not generalize to other educational contexts because they were limited to the selected respondents and schools in Dingalan, Aurora.

II. REVIEW OF RELATED LITERATURES AND STUDIES

2.1 Thematic Review of Related Literature

Technology is slowly entering early education, providing young students with interactive software, digital storytelling, videos, and various learning resources. Educational technology offers interactive, adaptable learning experiences that help foster early literacy in children. A systematic literature review of 67 studies by Bautista et al. (2024) shows that educational technology can be used to develop the early literacy skills of preschool children. However, its effectiveness depends on various factors, including technological aspects, learning activities, and implementation conditions.

Nevertheless, children's use of technology requires adult guidance. Taylor et al. (2024) have done a systematic review and meta-analysis on 17 studies with 1,288 children and have found that there exists a significant positive relationship between the co-use of technology by adults and children and learning among children. In a similar vein, Butler (2022) pointed out that digital language learning programs will have better outcomes if the material presented is age-appropriate and accompanied by interaction with adults.

Too much of the wrong kind of screen time could be a potential developmental problem. Children's cognitive, language, socio-emotional, sleep, and behavioral development difficulties have been associated with high levels of screen exposure (Muppalla et al., 2023). These findings underscore the necessity of assessing youngsters' technology use, including the frequency, duration, and types of content accessed, as well as parental supervision. Thus, technology use needs to be paired with language-rich, engaging experiences.

The skills that facilitate the development of formal reading skills include early literacy skills such as letter recognition, phonological Awareness, vocabulary, and listening comprehension. Phonological Awareness is especially critical since it enables young learners to identify and manipulate sounds in their language and foster reading (Kiss & Csapó, 2024). Vocabulary knowledge is also significant for language understanding and literacy development (Laloan, 2022; Zhou et al., 2024). Furthermore, listening comprehension is vital, as understanding spoken language is the foundation for the development of general language and literacy skills (Sanobar & Feruza, 2025).

In general, the literature indicates that technology can give meaningful opportunities for early literacy development when it is used purposefully, is appropriate for the child's developmental stage, and is supported by adults. However, there is a dearth of literature that has assessed how distinct patterns of technology device use are associated with several dimensions of early literacy among kindergarten learners simultaneously, especially in local Philippine contexts. This gap supports the present study in Dingalan, Aurora, which investigates device type, frequency, screen time, digital content, and parental supervision in relation to letter recognition, phonological Awareness, vocabulary development, and listening comprehension.

2.2 Review of Empirical Studies

An empirical study has demonstrated that the relationship between technology use and the development of children's literacy depends more on the use of digital devices than on access to devices alone. Chowsomchat et al. (2023) explored the use of touchscreen devices among preschool children and observed that higher device use was associated with better baseline fundamental reading skills, especially phonological Awareness and letter recognition. However, this connection was not significant when controlling for caregiver-related characteristics. Likewise, Turco et al. (2023) observed no significant association between the frequency of mobile device use and the development of children's language and literacy. This implies that frequency alone may not be a determinant of literacy outcomes and supports the need to explore other factors of technology use.

The amount and quality of screen time exposure also matter. In a study of Filipino toddlers, Dy et al. (2023) found that exposure to screens for more than 2 hours per day was associated with

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poorer language development, though some negative effects were offset by adult co-viewing. Muppalla et al. (2023) also found developmental problems related to excessive screen exposure in language, cognitive, and social-emotional domains. These findings provide empirical support for investigating the effects of screen time duration and parental supervision on children's literacy development.

Moreover, research has demonstrated that children's learning outcomes are influenced by the consumption of digital materials and instructional design. For instance, Gelig (2025) argued that students who read context-rich digital books had improved literacy outcomes. The author argued that relevant literacy-related information could help build learners' reading abilities. In a manner similar to the aforementioned research, Reyes et al. (2025) reported a significant increase in Phonological Awareness when learners used digital learning applications. On the other hand, Cruz et al. (2025) found that digital interventions were associated with better phonological Awareness outcomes than with vocabulary and print knowledge outcomes.

Technology-supported learning has also been connected with vocabulary development. Digital technology can improve young students' vocabulary acquisition (Laloan, 2022). In a comprehensive review of technology-enhanced vocabulary learning, Zhou et al. (2024) highlighted the significance of suitable technological design and learning settings. Multimedia-aided technology and authentic materials have been observed to provide additional opportunities for learners to comprehend spoken language and engage with diverse instructional resources (Sanobar & Feruza, 2025) in listening comprehension. These findings support the inclusion of vocabulary development and listening comprehension as unique elements of early literacy.

Parental and household variables also shape children's technological experiences. Konca (2022) observed that children's use of digital devices is affected by parental actions, including monitoring and modeling. Topbas and Bayir (2026) also found that sociodemographic and parental factors are related to children's screen-use patterns. These findings provide a foundation for considering parental age, education, occupation, and supervision in the investigation of children's technology use.

Empirical research findings suggest that technology does not inevitably enhance or impede early literacy. Its impact depends on frequency, time spent, topic, adult supervision, family circumstances, and design of training. Furthermore, existing information on the simultaneous association between these dimensions of technology use and letter recognition, phonological Awareness, vocabulary development, and listening comprehension among Philippine rural kindergarten learners remains inadequate. Thus, the present study addresses an important contextual and empirical gap by analyzing the use of digital devices and their relationship to early literacy development among kindergarten children in Dingalan, Aurora.

2.3 Theoretical Framework

This study was grounded in the Cognitive Theory of Multimedia Learning (CTML) by Mayer (2001) and Sociocultural Theory by Vygotsky (1978).

Mayer's CTML states that learners process information through visual and aural channels and may learn successfully when words, images, sounds, animations, and videos are properly blended. Cavanagh and Kiersch (2023) showed how CTML can be used to develop technology-supported multimedia training. The present study uses theory to explore associations between children's usage of technology devices and digital content and their letter recognition, phonological Awareness, vocabulary development, and listening comprehension.

Vygotsky's (1978) Sociocultural Theory emphasizes that children's learning is shaped by social interaction, guidance, and assistance from more knowledgeable others. Veraksa et al. (2022) have emphasized the importance of Vygotskian viewpoints for modern early childhood education. This study's theory emphasizes the importance of parents' monitoring and guidance of children's technology use and their learning to read.

These theories together provide a supplementary framework for studying the relationship between the use of technological devices and early literacy development among kindergarten children in Dingalan, Aurora.

2.4 Research Gap and Justification

Although research indicates that well-designed digital devices can assist with early literacy, particularly in domains like phonological Awareness, letter identification, and early decoding, the findings are not consistent across many literacy areas (Bautista et al., 2024; Cruz et al., 2025). Also, device exposure may not be the sole determinant of literacy outcomes. The association between touchscreen use and early reading skills was no longer significant after accounting for caregiver characteristics (Chowsomchat et al., 2023). Adult direction is also vital, as technological co-use between adults and children has related to higher learning outcomes (Taylor et al., 2024).

Nonetheless, there is a lack of evidence on the correlations among device utilization, usage frequency, screen time, digital content, parental oversight, and the reading competencies of young children, especially among kindergarten students in rural regions of the Philippines. Consequently, this research seeks to fill the void by investigating the correlation between device utilization and the enhancement of literacy competencies, including letter recognition, phonological Awareness, vocabulary, and listening comprehension, in Dingalan, Aurora.

The report also supports SDG 4, Target 4.2, which encourages quality early childhood development and education. This is also a goal of AmBisyon Natin 2040 and the EDCOM II reform plan, notably to improve the foundations of basic education and foster early literacy. Findings may provide evidence to help teachers, parents, and school administrators construct intentional, developmentally appropriate, and supervised use of technology to support the essential reading abilities of kindergarten learners.

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III. RESEARCH METHODOLOGY

Research Design

This research employed a quantitative descriptive-correlational approach to examine the relationship between engagement with technological devices and growth among kindergarten children. The descriptive aspect examined technology engagement by device classification, frequency of use, screen exposure, digital content, and parental guidance, as well as literacy growth in letter identification, phonological skills, vocabulary, and listening skills. The correlational element examined the degree and direction of the relationship between technology use and early literacy without manipulating the variables. This design was fitting for analyzing naturally occurring correlations among variables (Miksza et al., 2023).

Population and Sampling Techniques

The participants consisted of the parents or guardians of kindergarten students and kindergarten educators at Dingalan Central School and Tanawan Elementary School in Dingalan, Aurora, for the academic year 2026–2027. Seventy-five (75) parents or guardians and 5 to 10 educators were involved. Total enumeration sampling was employed for parents/guardians, whilst selective sampling was used to select kindergarten teachers who directly interacted with the students. These sample methods ensured that participants possessed relevant knowledge of technology device use and early literacy development.

Research Locale

The study was conducted at Dingalan Central School and Tanawan Elementary School in Dingalan, Aurora. The schools were selected because they offer kindergarten education and provide access to parents, teachers, and learners' literacy data needed to examine the relationship between technology device usage and early literacy development.

Research Instrument

A questionnaire created by the researcher was used to collect quantitative data on kindergartners' usage of technology and early literacy development. Parents and teachers were also handed the questionnaire.

Two sections comprised the parent questionnaire: 1) Respondent demographic information, including age, education, and occupation; and 2) Technological device usage, including screen time, digital media, type of device, frequency of use, and parental supervision. Seven statements regarding the use of technology in early childhood were connected to each criterion.

Validity and Reliability Measures

The instrument was validated, and its dependability was demonstrated by the researcher using standard procedures. To verify content validity and alignment with the research objectives, the questionnaire was sent to experts in education and related fields. A pilot test was performed to assess the internal consistency of the items through Cronbach's alpha. Only items that met reliability standards were retained to ensure the instrument was appropriate and dependable for measuring technology device usage and early literacy development.

Data Gathering Procedure

This study was approved by the Schools Division Superintendent and school leaders. Briefings on the study were given to the parents/guardians and kindergarten teachers, and the validated questionnaires were provided and collected after completion. The data obtained were tabulated and analyzed using SPSS, and the results formed the basis for the study's conclusions, suggestions, and practical output.

Data Management and Data Analysis Procedures

Coding, cleaning, and checking for missing data were done before analysis with SPSS. Frequency and percentage were used to describe the profile of parent-respondents. The mean and weighted mean were used to determine the Extent of technological device use and the level of early literacy development. Spearman's Rank-Order Correlation (ρ) was used as the inferential statistical test to determine whether a significant relationship existed between technology device usage and early literacy development. The significance level was set at $\alpha = 0.05$.

IV. RESULTS AND DISCUSSION

Profile of the parent-respondents in terms of age, educational attainment, and occupation

Table 1

Demographic profile of the parent-respondents

		f	%
Age	20 years old and below	2	2.7
	21–25 years old	23	30.7
	26–30 years old	19	25.3
	31–35 years old	11	14.7
	36–40 years old	20	26.7
	Total	**75**	**100.0**
Highest Educational Attainment	High School Level	2	2.7
	High School Graduate	38	50.7
	Senior High School Graduate	14	18.7
	College Level	15	20.0
	College Graduate	6	8.0
	Total	**75**	**100.0**

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Occupation	Government Employee	4	5.3
	Private Employee	46	61.3
	Self-Employed/Business Owner	3	4.0
	Farmer/Fisherman	4	5.3
	Skilled Worker (Carpenter, Mechanic, Driver, etc.)	6	8.0
	Overseas Filipino Worker (OFW)	7	9.3
	Unemployed	5	6.7
	Total	**75**	**100.0**

Table 1 shows that the biggest percentage of parent-respondents were in the 21-25 year age group (30.7%), high school graduates (50.7%), and private employees (61.3%).

The age profile is relevant to the study, as parental characteristics are related to children's use of digital devices and parental mediation practices (Konca, 2022). The educational profile is also relevant, as parental educational and sociodemographic factors have been linked to children's screen-use behaviors and home learning support (Topbas & Bayir, 2026). Moreover, Filipino research has recognized that parental interaction and co-viewing can alter children's experiences with screen exposure and language development (Dy et al., 2023). Thus, the demographic profile of the respondents provides a unique context for interpreting the use of digital devices and early literacy development among kindergarten learners.

Composite Mean on the Extent of technology device usage among kindergarten learners in terms of type of device, frequency of use, duration of screen time, type of digital content accessed, and level of parental supervision.

Table 2

Composite table on the Extent of technology device usage among kindergarten learners in terms of type of device, frequency of use, duration of screen time, type of digital content accessed, and level of parental supervision.

	Mean	Std. Deviation	Verbal Interpretation
Type of Device Use	2.89	0.47	Often
Frequency of Use	2.52	0.55	Often
Duration of Screen Time	2.63	0.56	Often
Type of Digital Content Accessed	3.28	0.56	Often
Type of Digital Content Accessed	3.28	0.54	Often
Technology Device Usage of Kindergarten Learners	**2.92**	**0.37**	**Often**

Legend: *4 (3.50 - 4.00) – Always 2 (1.50 - 2.49) – Sometimes*
3 (2.50 - 3.49) – Often 1 (1.00 - 1.49) – Never

From **Table 2**, it is seen that the average frequency of use of gadgets in kindergarten learners was "Often" (M=2.92, SD=.37). High values in composite scores were observed for the type of digital content and parental monitoring (M=3.28), then for the type of device use (M=2.89), screen time duration (M=2.63), and frequency of gadget use (M=2.52). On the individual level, children used gadgets mostly to listen to digital stories or songs (M=3.44), whereas parents advised children to use educational digital content and to take breaks from screens (M=3.44). It is evident that learners made frequent use of technology in their home environment, engaging with both educational and entertaining digital content, and that parents frequently acted as guides/monitors.

These findings are consistent with the literature indicating that children's responses to digital media are influenced by the type of information accessed, the content's context, and parental mediation during technology use (Konca, 2022; Taylor et al., 2024). In addition, evidence from the Philippines indicates that excessive screen exposure may lead to lower language scores and that adult co-viewing can promote more effective use of screen time (Dy et al., 2023). Muppalla et al. (2023) have highlighted the importance of limiting screen time in early infancy.

Composite Mean on the level of early literacy development of kindergarten learners in terms of letter recognition, phonological Awareness, vocabulary development, and listening comprehension.

Table 3

Composite table on the level of early literacy development of kindergarten learners in terms of letter recognition, phonological Awareness, vocabulary development, and listening comprehension.

	Mean	Std. Deviation	Verbal Interpretation
Letter Recognition	3.60	0.57	Highly Developed
Phonological Awareness	3.46	0.53	Moderately Developed
Vocabulary Development	3.41	0.34	Moderately Developed
Listening Comprehension	3.47	0.47	Moderately Developed
Level of Early Literacy Development of Kindergarten Learners	**3.49**	**0.39**	**Moderately Developed**

Legend: *4 (3.50 - 4.00) – Highly Developed 2 (1.50 - 2.49) – Slightly Developed*
3 (2.50 - 3.49) – Moderately Developed 1 (1.00 - 1.49) – Not yet Developed

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Table 3 results show that the average level of learners' literacy in kindergartens is Moderately Developed (M = 3.49, SD = 0.39). The highest mean score (M = 3.60) was in the capacity to recognize letters, showing that this was Highly Developed, compared to the other three characteristics, which were Moderately Developed: Phonological Awareness (M = 3.46), Listening comprehension (M = 3.47), and Vocabulary development (M = 3.41). The high level of letter recognition is in line with the findings of Lerner and Lonigan (2016) that letter knowledge and phonological Awareness are reciprocally related for preschoolers.

At the same time, lower values of phonological Awareness should be taken into account, especially the score in sound segmentation (M = 3.20). Lerner & Lonigan (2016) note the concurrent development of letter knowledge and phonological Awareness, and the importance of exercises that link letters to sounds. Moderately developed vocabulary and listening comprehension also indicate the necessity for continuing language-rich experiences for the children.

Findings may also be explored alongside studies of children's digital learning experiences. But the usefulness depends on the technology and features used, and a systematic evaluation of 67 studies found only limited evidence that educational technology can promote children's early literacy development (Bautista et al., 2024). Similarly, adult-child co-use of digital media was associated with children's learning, with a small but substantial positive effect, based on 17 studies involving 1,288 children (Taylor et al., 2024). Therefore, the results indicate that the learners have quite good basic literacy skills. Further guided activities may be useful for developing phonological Awareness, vocabulary, and listening comprehension .

Significant relationship between technology device usage and early literacy development of kindergarten learners in Dingalan, Aurora.

Table 4

Correlation between technology device usage and early literacy development of kindergarten learners in Dingalan, Aurora

			Level of Early Literacy Development of Kindergarten Learners
Spearman's rho	Technology Device Usage of Kindergarten Learners	Correlation Coefficient	0.347
		Sig. (2-tailed)	0.327
		N	75

Table 4 presented the correlation study of the use of technological devices and early literacy development among kindergarten learners in Dingalan, Aurora. The results show a positive, but modest, correlation between the two variables (Spearman's $\rho = 0.347$). However, the association was not statistically significant ($p = 0.327 > 0.05$). The null hypothesis that there was no significant association between the use of a technology device and early literacy development among the respondents was not rejected. However, although the positive coefficient indicates a relationship between more time spent using electronic devices and higher early literacy scores, the relationship was not statistically significant.

This result supports the idea that, rather than exposure alone, children's use of technology is influenced by the kind of digital content, the environment in which it is used, parental controls, and parental constraints (Gür & Türel, 2022). In a similar vein, Turco et al. (2023) discovered that children's literacy experiences cannot be fully explained by the frequency of mobile screen use alone when examining the relationship between mobile screen media frequency and children's home literacy. These results underscore the importance of other factors, including content, parental supervision, and the quality of children's learning experiences, supporting the current conclusion that variations in early literacy development may not be adequately explained by technology device use alone.

V. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings

Results revealed that parent respondents were primarily 21-25 years old, high school graduates, and employed in the private sector. The use of kindergarten learners was "Often" (M = 2.92, SD = 0.37) on average. The highest scores were seen in digital content exposure and parents' monitoring of their children. Early literacy skills development was "Moderately Developed" (M = 3.49, SD = 0.39) overall. The skill of letter identification was highly developed. There was a low positive relationship between technology device use and the development of early literacy skills ($\rho = 0.347$, $p = 0.327$).

Conclusions

The survey revealed that kindergarten learners routinely used electronic gadgets and mostly under parental guidance. Learners showed intermediate overall early reading skills, with better performance on letter recognition. But the use of technology devices was not strongly related to early literacy development. Hence, the null hypothesis was not rejected. This finding indicates that the use of technology alone was not sufficient to create a meaningful link to literacy growth in the study context.

Recommendations

Future studies may also take into account parents' digital literacy levels, the home literacy environment, socioeconomic factors, and instructors' instructional strategies. These kinds of studies, with varying sample sizes, can also be carried out in other domains. Technology could be used alongside traditional

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literacy techniques in a structured way, with assistance from parents and educators. Parents and teachers could receive training from schools on using technology in literacy lessons.

REFERENCES

1. *Bautista, G. F., Ghesquière, P., & Torbeyns, J. (2024). Stimulating preschoolers' early literacy development using educational technology: A systematic literature review.* International Journal of Child-Computer Interaction, 39, *100620. https://doi.org/10.1016/j.ijcci.2023.100620*
2. *Butler, Y. G. (2022). Learning through digital technologies among pre-primary school children: Implications for their additional language learning.* Language Teaching for Young Learners, 4*(1), 30–65. https://doi.org/10.1075/ltyl.21009.but*
3. *Caballero-Julia, D., Martín-Lucas, J., & Andrade-Silva, L. E. (2024). Unpacking the relationship between screen use and educational outcomes in childhood: A systematic literature review.* Computers & Education, 215, *105049. https://doi.org/10.1016/j.compedu.2024.105049*
4. *Cavanagh, T. M., & Kiersch, C. (2023). Using commonly-available technologies to create online multimedia lessons through the application of the Cognitive Theory of Multimedia Learning.* Educational Technology Research and Development, 71*(3), 1033–1053. https://doi.org/10.1007/s11423-022-10181-1*
5. *Chowsomchat, J., Boonrusmee, S., & Thongseiratch, T. (2023). Swipe, tap, read? Unveiling the effects of touchscreen devices on emergent literacy development in preschoolers.* BMC Pediatrics, 23, *625. https://doi.org/10.1186/s12887-023-04450-y*
6. *Cruz, J., Rodrigues, B., Alves, D., & Cadime, I. (2025). Boosting emergent literacy: Evaluating the efficacy of a universal intervention for preschoolers.* Early Childhood Education Journal, 54*(4), 2319–2332. https://doi.org/10.1007/s10643-025-02008-4*
7. *Dy, A. B. C., Dy, A. B. C., & Santos, S. K. (2023). Measuring effects of screen time on the development of children in the Philippines: A cross-sectional study.* BMC Public Health, 23, *1261. https://doi.org/10.1186/s12889-023-16188-4*
8. *Gür, D., & Türel, Y. K. (2022). Parenting in the digital age: Attitudes, controls and limitations regarding children's use of ICT.* Computers & Education, 183, *104504. https://doi.org/10.1016/j.compedu.2022.104504*
9. *Kiss, R., & Csapó, B. (2024). Technology-based assessment of phonological awareness in kindergarten.* International Journal of Early Childhood, 57*(1), 25–49. https://doi.org/10.1007/s13158-023-00386-7*
10. *Laloan, T. A. (2022). Improving young learners' vocabulary by using digital technology.* JELTEC: Journal of English Language Teaching, Literature and Culture, 1*(1), 39–45. https://doi.org/10.53682/jeltec.v1i1.3723*
11. *Lerner, M. D., & Lonigan, C. J. (2016). Bidirectional relations between phonological awareness and letter knowledge in preschool revisited: A growth curve analysis.* Journal of Experimental Child Psychology, 144, *166–183. https://doi.org/10.1016/j.jecp.2015.09.023*
12. *Mayer, R. E. (2001).* Multimedia learning. *Cambridge University Press. https://doi.org/10.1017/CBO9781139164603*
13. *Miksza, P., Shaw, J. T., Richerme, L. K., Hash, P. M., & Hodges, D. A. (2023). Quantitative descriptive and correlational research. In* Music education research: An introduction *(pp. 241–262). Oxford University Press. https://doi.org/10.1093/oso/9780197639757.003.0012*
14. *Muppalla, S. K., Vuppalapati, S., Reddy Pulliahgaru, A., & Sreenivasulu, H. (2023). Effects of excessive screen time on child development: An updated review and strategies for management.* Cureus, 15*(6), e40608. https://doi.org/10.7759/cureus.40608*
15. *Sanobar, X., & Feruza, P. (2025). The issue of improving listening comprehension skill.* Ustozlar uchun, 86*(4), 11–14.*
16. *Taylor, G., Sala, G., Kolak, J., Gerhardstein, P., & Lingwood, J. (2024). Does adult-child co-use during digital media use improve children's learning aged 0–6 years? A systematic review with meta-analysis.* Educational Research Review, 44, *100614. https://doi.org/10.1016/j.edurev.2024.100614*
17. *Turco, R. G., Lesaux, N. K., & Jones, S. M. (2023). Home literacy in the digital era: The role of mobile screen media frequency in a US state.* British Journal of Educational Technology, 54*(2), 513–533.*
18. *Veraksa, N., Colliver, Y., & Sukhikh, V. (2022). Piaget and Vygotsky's play theories: The profile of twenty-first-century evidence. In N. Veraksa & I. Pramling Samuelsson (Eds.),* Piaget and Vygotsky in the XXI century: Early childhood research and education: An inter-theoretical focus *(Vol. 4). Springer. https://doi.org/10.1007/978-3-031-05747-2_10*
19. *Vygotsky, L. S. (1978).* Mind in society: The development of higher psychological processes. *Harvard University Press.*
20. *Zhou, K., Jin, F., Li, W., Song, Z., Huang, X. Y., & Lin, C.-H. (2024). The design of technology-enhanced vocabulary learning: A systematic review.* Education and Information Technologies, 29*(12), 14875–14897. https://doi.org/10.1007/s10639-023-12423-y*