Journal of Humanities and Social Sciences Studies
ISSN: 2663-7197
DOI: 10.32996/jhsss
Journal Homepage: www.al-kindipublisher.com/index.php/jhsss

JHSSS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Evaluating Effects of Electronic Gadgets on Learners' Attention and Focus

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| ABSTRACT
This study investigated the impact of electronic gadget use on the attention and focus of kindergarten learners. Utilizing a descriptive-correlational research design, data were collected from sixty kindergarten teachers who were purposively selected to complete a validated survey instrument. The analysis employed weighted means and Pearson correlation to determine the relationship between electronic gadget use and various dimensions of learners' attention and focus. The demographic profile revealed that most learners were six years old, predominantly female, from families with two to three children, and raised by parents who had attained at least a high school level of education. These parents typically exhibited authoritative parenting styles. The findings indicated that learners used electronic gadgets occasionally, mainly for entertainment purposes such as playing games or watching videos on smartphones and tablets. While teachers generally rated learners' attention span and task completion as high, statistical analysis showed a significant negative correlation between gadget use and learner engagement. This suggests that excessive or unsupervised screen time may hinder children's active participation, curiosity, and overall classroom involvement. The study emphasizes the importance of guided and purposeful use of technology in early childhood education to ensure it supports, rather than detracts from, cognitive and behavioral development. Based on the results, the study recommends that parents and educators work collaboratively to establish balanced digital habits. This can be achieved by setting screen time limits, prioritizing educational content, and integrating interactive, developmentally appropriate activities that promote attention and engagement.

| KEYWORDS

Electronic gadget use, Kindergarten pupils, Attention and focus, Early childhood education

| ARTICLE INFORMATION

ACCEPTED: 19 August 2025 **PUBLISHED:** 12 September 2025 **DOI:** 10.32996/jhsss.2025.7.9.4

Introduction

In today's digital landscape, the proliferation of electronic gadgets such as smartphones, tablets, and laptops has become a hallmark of modern living. Even young children are not immune to this trend, with growing exposure to digital screens during early developmental stages. Between 2020 and 2025, emerging research has increasingly highlighted concerns about the impact of screen time on attention and focus among kindergarten-aged children. Studies have found that frequent gadget use may impair sustained attention, reduce classroom responsiveness, and interfere with social behaviors (Hayat, 2024). Notably, children who spend more than two hours per day using gadgets often exhibit symptoms like restlessness, irritability, reduced persistence, and lower motivation to engage in non-digital academic or social activities (Kumala & Wahyuni, 2024).

Furthermore, the use of gadgets during formative years has been associated with disruptions in emotional regulation and social-emotional development. Doni, Susanti, and Ponda (2019) observed that excessive gadget usage in preschool children correlated with significant developmental delays, while Nurmahidayati et al. (2024) emphasized that gadget playing patterns can directly influence cognitive and creative thinking abilities. These patterns of overuse often result in reduced self-awareness,

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diminished capacity for imaginative play, and impaired ability to return to tasks after distractions. While many educational systems have adopted technology as a means of enhancing learning, concerns persist that the uncontrolled use of gadgets may outweigh their benefits if guidelines are not properly enforced (Putimtseva, 2024). Parents and educators alike have reported difficulty in ensuring moderation, particularly when gadgets are used for both educational and recreational purposes. Kalabina, Nikitina, and Nikolaeva (2024) emphasized that children are often left alone with gadgets, which leads to missed opportunities for adult-guided interactions that are critical for attention development.

Kindergarten is a crucial stage for the development of executive functions, particularly those related to attention, memory, and cognitive flexibility. Children at this stage are learning to focus, follow routines, and develop both academic and emotional regulation skills. However, the rise in gadget uses during the COVID-19 pandemic, especially due to remote learning, has raised important questions about whether this digital exposure supports or undermines classroom engagement (Ani et al., 2020). The World Health Organization (WHO, 2019) issued screen time guidelines recommending zero screen exposure for children under 2 years and a maximum of one hour per day for those aged 2–4 years. Despite these guidelines, global implementation remains limited, particularly in regions where technology is seen as an essential part of early education.
In the Philippine context, the adoption of digital learning tools is rapidly increasing, particularly in urban centers. Devices are frequently used not only for learning but also as tools for child entertainment, leading to increased screen exposure. Hancock and Dufresne (2019) highlighted that sustained attention in early education is essential for academic development, and any distraction introduced by gadgets can undermine educational outcomes. Although most studies examining the effects of technology on learners focus on older children or adolescents, very few explore its influence on kindergarten pupils, creating a research gap that must be addressed (Radesky et al., 2020).

Moreover, the Philippines presents a unique case due to significant disparities in digital access across rural and urban areas. These differences may result in unequal educational outcomes and varying effects of gadget use depending on socioeconomic context. Cruz (2022) argued that a nuanced understanding of gadget use factoring in household income, parental involvement, and type of digital exposure is critical to crafting effective educational policies. The Department of Education in the Philippines has recognized the role of technology in learning through policies such as Republic Act No. 10650 (2015), which promotes ICT integration in education. However, these initiatives do not explicitly address the possible drawbacks of digital tools on attention span, particularly for younger learners. The K to 12 Basic Education Curriculum promotes 21st-century skills like critical thinking and focus but lacks specific guidance on digital hygiene and screen time management in early education (DepEd, 2016). This underscores the need for evidence-based research focusing on younger children in local contexts. By examining how gadget use correlates with attention and focus among kindergarten pupils, this study seeks to offer insights that may inform both teaching strategies and policy interventions. Given that screen exposure begins at increasingly younger ages, understanding its impact during early developmental windows is essential.

This research, focuses on how gadget usage relates to the attention and focus of kindergarten pupils. The findings aim to provide data-driven recommendations for educators and parents to better manage children's screen time. Additionally, it seeks to support policymakers in designing digital literacy programs and screen time regulations tailored for early childhood education in the Philippines. Ultimately, this study contributes to the global discourse on balancing digital learning tools with the developmental needs of young learners, especially in emerging economies where technology is rapidly evolving.

Literature Review

Parental perception is essential in understanding how electronic gadget usage impacts kindergarten children. Research shows that many parents allow screen time primarily for recreation, often involving smartphones or tablets for games or videos (Kalabina et al., 2024). While some parents recognize the learning potential of gadgets when used in moderation, they remain concerned about overexposure leading to behavioral dependence and disinterest in non-digital play (Novitasari et al., 2025). Even though digital tools may support cognitive growth, parents report challenges in managing their use to prevent negative effects on children's daily routines and attitudes (Fahrizal & Suminar, 2023). When it comes to attention and focus, many parents observe that frequent gadget use affects their child's ability to stay engaged in non-digital tasks. Although some maintain attention in structured environments, research indicates that extended screen exposure can reduce responsiveness and classroom participation (Agustin et al., 2019). Children who habitually use gadgets may become easily distracted, exhibit restlessness, and prefer fast-paced digital content, making it difficult for them to concentrate on slower, task-based learning activities (Fadlilah & Krisnanto, 2019). These insights emphasize the importance of guiding gadget use to preserve young learners' focus and engagement.

Methodology

This research applied a quantitative method using a correlational design and a cross-sectional approach to explore the connection between electronic gadget usage and the attention and focus of kindergarten children. This approach enabled the researcher to gather and examine data at a single point in time to determine the relationship between the two variables. As noted by Creswell (2014), this kind of research is effective for identifying relationships between factors through numerical data and statistical analysis. The respondent's environment accommodates learners from various socioeconomic backgrounds, making it an appropriate setting for examining gadget exposure and learning behavior. The participants were kindergarten pupils' parents, selected through purposive sampling a technique in which respondents are chosen based on specific criteria relevant to the research goals. Data collection was carried out using a structured survey questionnaire. The items measured how frequently children used gadgets and how parents perceived their attention and focus levels. A 5-point Likert scale was used, allowing parents to express agreement or disagreement with given statements. To analyze the data, the Pearson Correlation Coefficient (r) was utilized to assess whether a statistically significant relationship existed between gadget usage and the children's levels of attention and focus.

Table 1. Age and Sex of the Kindergarten Pupils

Age (in years)	Female		Male		Total	
	f	%	f	%	f	%
4 years	0	0	0	0	0	0
5 years	12	37.50	9	32.14	21	35
6 years	20	62.50	19	67.86	39	65
7 years	0	0	0	0	0	0
Total	32	100.00	28	100.00	60	100.00

Results

Table 1 presents the age and sex distribution of the kindergarten pupils who participated in the study. Out of the total 60 pupils, 32 were female and 28 were male. The majority of the pupils were 6 years old, making up 65% of the total population (62.50% of girls and 67.86% of boys). Meanwhile, 5-year-olds made up 35% of the group (37.50% of girls and 32.14% of boys). There were no pupils aged 4 or 7 years included in the sample.

Table 2. Parents' Highest Educational Attainment

Parent's Educational Attainment	f	%
Doctorate Graduate	0	0
With Doctorate Units	0	0
College Graduate	5	8.33
College Level	6	10.00
High School Graduate	43	71.67
High School Level	3	5.00
Elem. Graduate	2	3.33
Elem. Level	1	1.67
Total	60	100.00

Table 2 shows the highest educational attainment of the parents of the kindergarten pupils. Out of the 60 parent-respondents, the majority 43 parents or 71.67% were high school graduates. A smaller number, 6 parents (10%), had reached the college level but had not graduated, while 5 parents (8.33%) were college graduates. Only 3 parents (5%) had some high school education without graduating. Additionally, 2 parents (3.33%) were elementary school graduates, and 1 parent (1.67%) had only reached the elementary level. No parents had postgraduate education or units. This data suggests that most of the parents have a high school-level education, which may influence their perspectives and involvement in their children's use of electronic gadgets and academic focus.

Table 3. Number of Siblings

Number of Siblings	f	%
1	6	10
2	33	55
3	12	20
4	8	13.33
5 and above	1	1.67
Total	60	100.00

Table 3 presents the number of siblings that the kindergarten pupils have. The majority of the pupils, 33 out of 60 (55%), have 2 siblings, making this the most common family size in the study. 12 pupils (20%) have 3 siblings, while 6 pupils (10%) are only children with 1 sibling. Additionally, 8 pupils (13.33%) have 4 siblings, and just 1 pupil (1.67%) comes from a larger family with 5 or more siblings. This shows that most of the children in the study come from small to medium-sized families, which could influence factors such as gadget sharing, parental attention, and home learning environments.

Table 4. Parenting Style

Parental Style	f	%
Authoritative	51	85
Authoritarian	7	11.67
Permissive	2	3.33
Neglectful	0	0
Total	60	100.00

Table 4 shows the parenting styles reported by the parents of the kindergarten pupils. The most common style was authoritative, used by 51 out of 60 parents (85%), which is known for being both supportive and firm. This suggests that most parents' balance warmth with clear rules. 7 parents (11.67%) followed an authoritarian style, which tends to be stricter and more controlling. Only 2 parents (3.33%) reported using a permissive style, which is more lenient and allows children more freedom. No parents reported a neglectful style, which involves low responsiveness and low demands. Overall, the data indicates that most parents in the study practice a positive and structured approach to parenting, which may influence how their children use gadgets and develop attention and focus skills.

Table 5. Extent of Engagement in the Use of Electronic Gadgets

S/N	Indicators	WM	Verbal Description
1	My child uses a smartphone or tablet at home.	3.78	Frequent
2	My child uses gadgets primarily for entertainment (watching videos, playing games, etc.).	3.75	Frequent
3	My child uses gadgets for more than 2 hours per day.	3.45	Frequent
4	Gadget usage affects my child's regular sleep schedule.	3.12	Occasional
5	Gadget usage affects my child's eating habits.	3.08	Occasional
6	My child insists on using gadgets during mealtime or family time.	3.12	Occasional
7	My child prefers using gadgets over interacting with peers or siblings.	3.20	Occasional
8	My child becomes irritable, angry, or upset when gadgets are taken away or restricted.	3.10	Occasional
9	My child uses gadgets without adult supervision.	3.23	Occasional
10	My child asks for gadgets immediately after waking up or arriving home from school.	3.32	Occasional
Aggregate Weighted Mean		3.32	Occasional
Standard Deviation		0.26	

Table 5 presents the extent of engagement in the use of electronic gadgets among kindergarten pupils based on parent responses. The data shows that children frequently use gadgets at home, especially smartphones or tablets (WM = 3.78) and mainly for entertainment like watching videos or playing games (WM = 3.75). Many also use gadgets for more than 2 hours a day (WM = 3.45), suggesting a notable amount of screen time. However, for most behavioral impacts such as changes in sleep

routines, eating habits, mood, and social interactions the responses fall under the "Occasional" category, with weighted means ranging from 3.08 to 3.32. For instance, some children occasionally get irritable when gadgets are restricted (WM = 3.10) or ask for gadgets right after waking up or coming home (WM = 3.32). The use of gadgets without supervision (WM = 3.23) and preferring gadgets over social interaction (WM = 3.20) were also observed occasionally. The aggregate weighted mean is 3.32, interpreted as "Occasional" engagement overall. This suggests that while gadget use is a regular part of children's routines, the negative effects on behavior and habits are not constant, but do occur from time to time. The standard deviation of 0.26 indicates some variability in parent responses.

Table 6. Level of Attention and Focus among Kindergarten Pupils in terms of Duration

S/N	Indicators	WM	Verbal Description
1	My child stays focused on an activity (e.g., playing or drawing) for several minutes without shifting.	3.73	High
2	My child remains seated and attentive during family activities like mealtime or storytelling.	3.73	High
3	My child continues an activity (e.g., puzzle, toy play) without frequently getting up or stopping.	3.65	High
4	My child can focus on a task or play independently for at least 5–10 minutes.	3.72	High
5	My child does not need frequent reminders to stay in one place while doing an activity.	3.70	High
Aggregate Weighted Mean		3.71	High
Standard Deviation		0.03	

Table 6 shows the level of attention and focus among kindergarten pupils in terms of duration, based on parent observations. All five indicators received a "High" verbal description, with weighted means (WM) ranging from 3.65 to 3.73, indicating that most children can sustain attention for appropriate periods during activities. The highest ratings were observed in children's ability to stay focused on a task without shifting and to remain attentive during structured family activities like storytelling or mealtimes, both with a WM of 3.73. Pupils also showed a strong ability to focus independently for 5–10 minutes (WM = 3.72) and to stay in one place without constant reminders (WM = 3.70). The slightly lower but still "High" score was for maintaining focus without getting up during play activities (WM = 3.65). The aggregate weighted mean of 3.71 reflects a high overall level of attention and focus in terms of how long the children can stay engaged in a task. The very low standard deviation of 0.03 suggests that responses among parents were very consistent, reinforcing the reliability of the findings. Overall, the data indicates that most kindergarten pupils in this study are capable of maintaining focus for short, developmentally appropriate periods

Table 7. Level of Attention and Focus among Kindergarten Pupils in terms of Task Completion

S/N	Indicators	WM	Verbal Description
1	My child finishes household routines or simple tasks (e.g., putting away toys, brushing teeth) when asked.	3.68	High
2	My child completes activities like coloring or building blocks without leaving them unfinished.	3.65	High
3	My child usually completes one task before starting a new one.	3.80	High
4	My child returns to a task after being interrupted or distracted.	3.67	High
5	My child follows simple directions (e.g., "pack away your toys") until the task is fully done.	3.85	High
Aggregate Weighted Mean		3.73	High
Standard Deviation		0.09	

Table 7 highlights the level of attention and focus of kindergarten pupils in terms of task completion, as observed by their parents. All five indicators received a "High" verbal description, with weighted means (WM) ranging from 3.65 to 3.85, indicating that most children in the study consistently demonstrate the ability to complete simple and routine tasks. The highest-rated indicator was that children follow simple directions until the task is fully done (WM = 3.85), showing strong compliance and task persistence. This was closely followed by the behavior of completing one task before starting another (WM = 3.80), which

reflects good sequencing and focus. Other indicators, such as returning to a task after being distracted (WM = 3.67) and finishing household routines when asked (WM = 3.68), also received high ratings, suggesting that the children are generally capable of maintaining attention long enough to complete expected tasks. The lowest score, though still high (WM = 3.65), was for completing play or creative tasks without leaving them unfinished, indicating that structured tasks may be easier to complete than freeform ones. The aggregate weighted mean of 3.73 confirms that children have a high level of focus and task completion ability. The standard deviation of 0.09 suggests a low variability in responses, meaning that most parents shared similar perceptions.

Table 8. Level of Attention and Focus among Kindergarten Pupils in terms of Engagement Level

S/N	Indicators	WM	Verbal Description
1	My child shows excitement or joy when doing play or learning activities at home.	4.07	High
2	My child willingly joins in family conversations or activities like storytelling or singing.	3.85	High
3	My child pays attention and responds when spoken to (e.g., looks, answers, or nods).	3.97	High
4	My child initiates learning activities on their own (e.g., looking at books, asking questions, building toys).	3.85	High
5	My child shows curiosity about new things (e.g., asking "why" or exploring how things work).	4.08	High
Aggregate Weighted Mean		3.96	High
Standard Deviation		0.11	

Table 8 presents the level of attention and focus among kindergarten pupils in terms of engagement level, based on parents' observations at home. All five indicators were rated "High", with weighted means (WM) ranging from 3.85 to 4.08, showing that children are generally active, responsive, and interested in learning and social activities. The highest rating was for children showing curiosity about new things (WM = 4.08), which reflects their natural desire to explore and learn an essential trait for early childhood development. Close behind was their excitement or joy during play and learning activities (WM = 4.07), suggesting that most children are emotionally engaged and enjoy participating in educational and recreational tasks. Another strong area was paying attention and responding when spoken to (WM = 3.97), which demonstrates good listening and communication skills. Children also showed initiative by starting learning activities on their own (WM = 3.85) and joining family conversations or group activities like storytelling or singing (WM = 3.85), further indicating active participation and social involvement. With an aggregate weighted mean of 3.96, the data suggests a high overall engagement level among the children. The standard deviation of 0.11 reflects minor variations in parent responses but still supports consistent observations. In summary, the findings indicate that most kindergarten pupils are highly engaged, curious, and interactive, which are positive signs of healthy cognitive and emotional development.

Table 9. Test of relationship between the Usage of Electronic Gadget and the Level of Attention and Focus among Kindergarten Pupils

Variables	r-value	Strength of Correlation	p - value	Decision	Remarks
Usage of Electronic Gadgets and Duration	0.000	Negligible Positive	0.997	Do not reject HO	Not Significant
Usage of Electronic Gadgets and Task Completion	-0.113	Weak Negative	0.389	Do not reject HO	Not Significant
Usage of Electronic Gadgets and Engagement Level	-0.321	Weak Negative	0.012	Reject HO	Significant

*significant at $p<0.05$ (two-tailed)

Table 9 presents the statistical analysis of the relationship between the usage of electronic gadgets and three domains of attention and focus among kindergarten pupils: duration, task completion, and engagement level. The results were based on the Pearson correlation coefficient (r-value) and their corresponding significance (p-value). For the relationship between gadget usage and duration of attention, the result shows an r-value of 0.000 and a p-value of 0.997, indicating no correlation at all. Since the p-value is far above the 0.05 threshold, the null hypothesis (HO) is not rejected, meaning gadget use has no significant impact on how long children can focus on a task. When examining task completion, the r-value is -0.113, indicating a very weak negative correlation, and the p-value is 0.389, which is again not statistically significant. This suggests that while there might be a slight tendency for increased gadget use to negatively influence task completion, the evidence is not strong enough to confirm a real relationship. However, a significant finding is observed between gadget usage and engagement level, where the r-value is -0.321 (indicating a weak negative correlation) and the p-value is 0.012, which is below the 0.05 significance level. In this case, the null hypothesis is rejected, meaning there is a statistically significant relationship. The result implies that higher gadget usage is associated with lower engagement levels, such as curiosity, joy in activities, and social interaction.
In summary, the findings suggest that while gadget use does not significantly affect attention duration or task completion, it negatively affects engagement, highlighting a potential area of concern for early childhood development and a need for balanced screen time management.

Discussion

The findings of this study reveal a significant relationship between electronic gadget usage and engagement levels among kindergarten pupils, aligning with prior research that suggests excessive screen time may diminish young children's attention and engagement in learning activities. Specifically, a weak negative correlation was found between gadget use and engagement, indicating that higher screen exposure is associated with lower levels of curiosity, initiative, and responsiveness. Vigil (2019) similarly found that increased screen time among kindergartners was significantly associated with reduced attention, which can impair school readiness and social participation. These patterns underscore the growing concerns among educators and developmental psychologists that screen-heavy environments, particularly those focused on entertainment rather than educational content, may compromise the development of essential learning behaviors in early childhood. Additionally, Axelsson et al. (2022) reported that greater engagement with entertainment-based screen content predicted more attention difficulties and lower cognitive scores in preschool children. This suggests that the quality and duration of screen exposure can interfere with natural learning experiences such as imaginative play, interactive storytelling, or family conversations activities found in this study to be strongly associated with high attention and focus. While screen time did not show a significant impact on attention duration or task completion in the present study, the negative influence on engagement highlights the importance of active parental mediation and balanced screen use. Therefore, consistent with global recommendations, parents and educators are encouraged to monitor both the quantity and quality of screen exposure, ensuring it complements rather than replaces developmentally enriching interactions.

Conclusions

The study provided valuable assistance in understanding how various dimensions of attention; namely, duration, task completion, and engagement are demonstrated by kindergarten learners in the context of electronic gadget use. Results show that learners, despite exposure to digital media, are generally able to maintain attention and follow through with tasks when learning environments are structured and guided effectively. This suggests that foundational attention skills among young children remain strong in the presence of technology when appropriate supervision is in place. Ultimately, the study assists educators and parents in making informed decisions about technology use in early childhood education, with an emphasis on preserving the quality of learner engagement an essential foundation for long-term academic and social development**.**

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
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