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ORIGINAL RESEARCH ARTICLE

Advantages of Restricted Caregiving on Work Behaviors of Digitally Fixated Children Ages 2–5 in Cavite

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ABSTRACT

The study investigated the effects of caregiving approaches on the work behaviors of digitally fixated children aged 2 to 5 years in Cavite, Philippines. It examined how restricted, unrestricted, and supervised caregiving approaches influence a child's attention, concentration, frustration tolerance, and impulse control. A descriptive correlational quantitative design was used, involving 75 caregiver–child dyads selected through purposive and convenience sampling. The study introduced a caregiver approach classification tool developed and validated for the Philippine context, which caregivers completed along with adapted instruments to rate their children's work behaviors. Descriptive statistics showed that the restricted caregiving approach was most prevalent, followed by supervised and unrestricted, while caregiver reports indicated average work behavior quality. Spearman's rank-order correlation indicated a very weak, positive, and non-significant association between caregiving approaches and work behaviors. In contrast, the Kruskal–Wallis *H* test revealed significant differences in work behaviors across caregiving approaches, with Dunn's post hoc analysis confirming higher work behavior levels among children in restricted caregiving than in supervised or unrestricted caregiving. These findings suggest that a restricted caregiving approach may better support work behaviors among digitally fixated young children by providing consistent structure and clear limits during task engagement.

Keywords: *Early childhood development, child behavior, restricted, supervision , unrestricted*

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INTRODUCTION

Data show that many children experience screen time, defined as the amount of time spent engaging with screen-based digital media such as televisions, smartphones, tablets, computers and other electronic devices for viewing, interaction, or entertainment, early as infancy, from birth to 24 months of age (Swider-Cios et al., 2023). Once integrated into a child's routine, screen use becomes difficult to regulate, considering that technology is now embedded in educational settings (Rahmawati and Latifah, 2019). A study of kindergarten teachers in Davao de Oro reports persistent time and resource shortages in caring for learners, while research on early childhood teachers in Tagum City shows how limited materials and support add to caregiving demands in educational settings (Cabodoc, 2025; Cangas et al., 2025). These parallels suggest that a lack of time and resources pushes both caregivers and teachers to use digital devices to keep children occupied, increasing their exposure to gadgets at an early age.

The growing exposure of children to digital media has raised concerns about digital fixation, a condition characterized by excessive, often uncontrolled gadget use (Levine et al., 2023). Janschitz and Penker (2022) discussed the conceptual definition of digital fixation through five indicators under the first-order dimension of attitude towards digitalization, which assessed the perceived impact of the internet and digital devices on daily life, the tendency to use the internet longer than intended, sustained interest in the latest digital trends such as new equipment, software, or applications, the perceived indispensability of the internet for daily functioning, and the

prioritization of searching the internet first when information is needed.

In line with this, parenting style plays a significant role in shaping children's digital behaviors. Aperocho et al. (2023) highlighted the struggles of early parenthood, including the demands of daily care, emotional strain, and limited time and support, which shape approaches to caregiving. These conditions influence how parents manage children's routines and behaviors, with digital devices often used as practical coping tools to ease caregiving burden while juggling multiple responsibilities and role expectations. This raises significant concerns, given that children's screen time has been associated with greater behavioral difficulties, negative affect, and sleep problems, particularly when used to manage emotions or at bedtime (Axelsson et al., 2025). Gür and Türel (2022) identified three general approaches to granting children access to technology: restricted access, unrestricted use, or use with supervision, which includes a wide repertoire of techniques such as reviewing children's messages with peers, utilizing parental controls, or allowing screen time as a reward for completing tasks like homework or achieving high grades in exams. Employing these strategies aims to build good behaviors in children, ensure the appropriateness of content, avoid tantrums, and facilitate smoother transitions in routine (Jago et al., 2016; Gentile et al., 2014, as cited in Lunkenheimer et al., 2023; Elias and Sulkin, 2019). Gür and Türel (2022) highlighted that caregiving approaches significantly influence how children manage screen use and develop habits of attention, focus, and self-regulation. Considering this, the American Academy of Pediatrics recommends limiting children's digital exposure to one hour daily (Pappas, 2020).

Gür and Türel (2022) emphasized that while restrictive approaches may limit certain learning opportunities, they also help reduce risks associated with excessive exposure, encouraging better self-regulation and attentional control. Similarly, Nikken and Schols (2015) found that parents who supervise or discuss media use with their children support the development of structured behaviors, attention, and safe media habits. Local studies in the Philippines have primarily focused on the developmental and behavioral effects of screen time among young children. Dy et al. (2023) found that excessive screen exposure among Filipino children was associated with delayed language development, decreased personal and interpersonal social skills, and limited play and leisure abilities. Similarly, Pangandaman et al. (2021) reported work behaviors such as tantrums, crying, and difficulty expressing needs when children were denied access to digital devices. Despite existing studies on parenting and digital use, no local studies have yet examined this correlation among preschool-aged children or explored its implications for pediatric occupational therapy (OT).

Therefore, this study aims to determine the caregiving approaches toward digital device use and their effects on the work behaviors of digitally fixated children aged 2 to 5 years old in Cavite. Specifically, digital fixation was operationalized as daily screen exposure exceeding 2 hours, consistent with developmental risks cited in pediatric and media-use literature. While digital fixation is a multidimensional construct involving behavioral implications, screen time duration was selected as a practical and observable proxy to identify children at higher risk for self-regulatory challenges. It specifically seeks to identify the approaches employed by caregivers, assess the quality of children's work behaviors based on caregiver-reported data, analyze the relationship between caregiving approaches and behavioral outcomes, and determine if there are significant differences in these work behaviors based on the caregiving approach used. Through this, the study intends to provide evidence that may inform caregivers, educators, and OT practitioners in promoting healthier digital engagement and fostering behavioral regulation in early childhood.

MATERIALS AND METHODS

Description of the study area

The study was conducted in Cavite Province, located in the CALABARZON Region (Region IV-A) of Luzon, Philippines (Figure 1). This province was selected as the research locale because of its diverse population, rapid technological integration, and accessibility to digital devices among young children (PhilAtlas, 2026; Philippine Statistics Authority, 2024; Konca, 2022; Pereyra and Canoy, 2024).

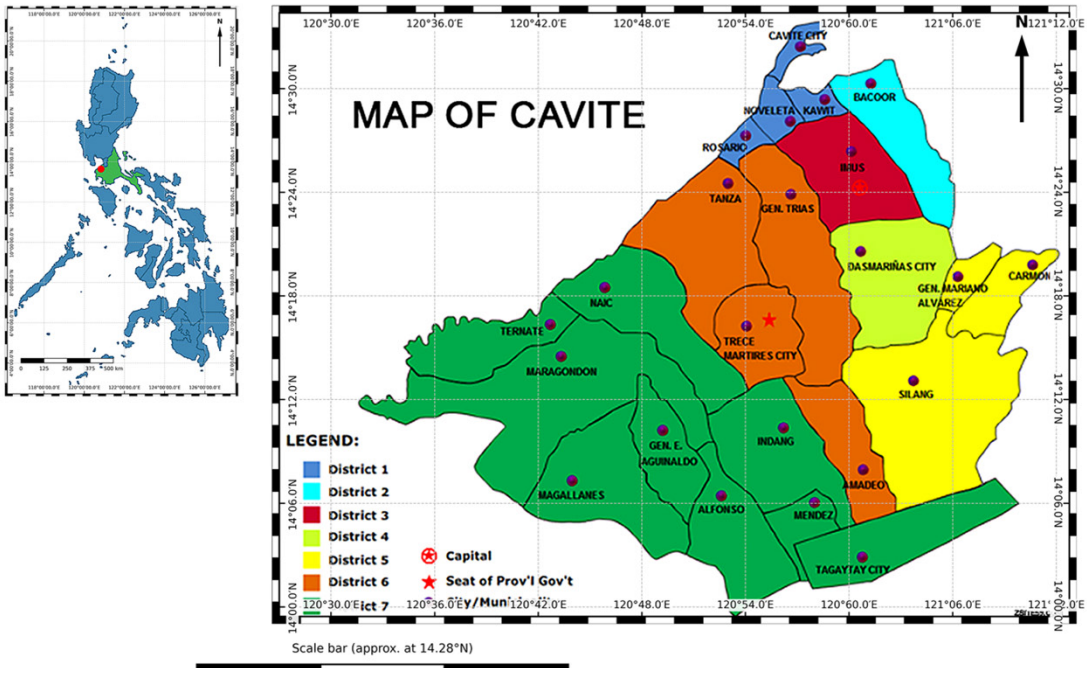

Figure 1. Map showing the Province of Cavite as the study area.

Research design

A quantitative descriptive-correlational design was used to measure the relationship between caregiving approaches and work behaviors of digitally fixated children aged 2 to 5 years. A researcher-developed tool classified caregiving approaches as restricted, unrestricted, and with supervision. Adapted questionnaires measured attention, concentration, frustration tolerance, and impulse control. This design enabled statistical description and correlation of variables without manipulation.

Population and Sampling

The participants in the study comprised 75 caregiver-child pairs from Cavite, consisting of one caregiver and a neurotypical child aged between two and five years old with digital fixation. Respondents were chosen through purposive sampling in accordance with the inclusion criteria, with convenience sampling used to recruit available and qualified participants in order to reach the required sample size of 75, consistent with a related descriptive correlational study by Starks et al. (2019). The sample size was determined for the study as a whole rather than per caregiving approach group. The caregivers included parents, grandparents, godparents, and other permanent guardians who served as the child's primary or regular caregivers and had direct, day-to-day responsibility for the child's care and digital device use. Caregiver eligibility was identified through initial screening questions confirming their caregiving role and responsibility for supervising or regulating the child's screen time. Children were eligible if they engaged with digital devices for over two hours per day (excluding video calls). Families residing outside Cavite and caregivers of children with clinically diagnosed neurodivergent conditions were not included.

Classification into restricted, unrestricted, and supervised caregiving approaches was conducted only after data collection using the caregiving approach classification tool. Consequently, the number of participants in each caregiving group reflects the natural distribution of caregiving practices among respondents and was not predetermined during sampling. All eligible caregivers gave their informed consent prior to completing the questionnaires, which were administered either in person or through digital formats based on availability.

Data collection

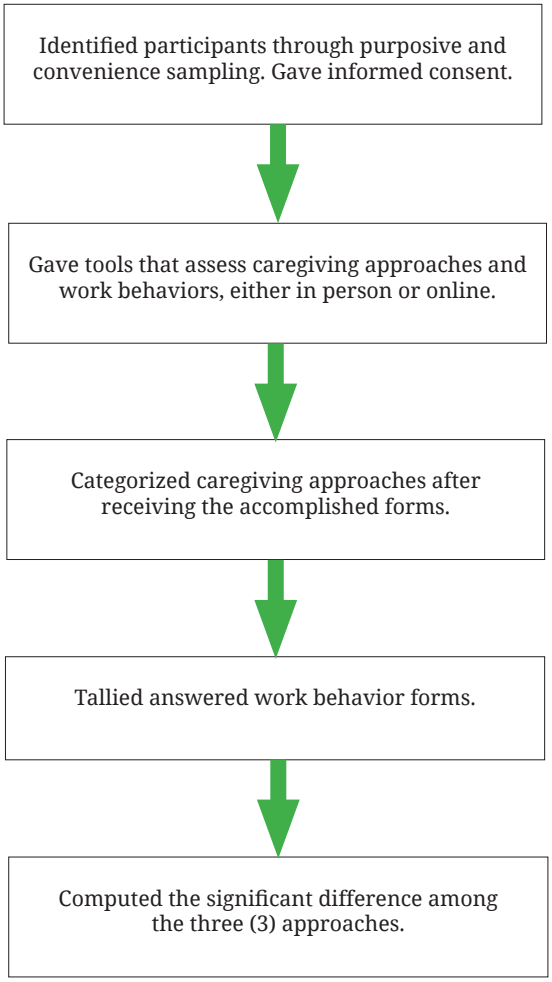

Figure 2. Flowchart of data gathering procedure.

Data collection followed the sequence shown in Figure 2. Participants were chosen through purposive and convenience sampling. After obtaining informed consent, they answered two tools: the caregiving approaches questionnaire and the work behaviors form. Returned responses were categorized according to caregiving approaches, followed by the tallying of work behavior scores. The data were then statistically analyzed to determine significant differences among the three caregiving approaches.

Research instrument

The research employed a structured questionnaire that was divided into two sections: (1) the caregiving approaches questionnaire and (2) the work behavior form. The caregiving approaches questionnaire was created by the researchers to identify the prevalent parenting styles related to children's digital usage. It is divided into 3 sections: restricted, unrestricted, and with supervision, all consisting of 10 statements rated using a 4-point Likert scale to measure how often each approach is used and to identify the dominant caregiving approach. The statements focus on usage schedule and location, access control and platform restrictions, and supervision and education. All instruments underwent validation by three professionals: a psychometrician, an occupational therapist, and a developmental pediatrician. Pilot testing among twenty caregivers yielded satisfactory internal consistency, with Cronbach's alpha coefficients of 0.897 for attention, 0.895 for concentration, 0.924 for frustration tolerance, and 0.835 for impulse control, indicating good to excellent reliability across all domains. The work behavior form was modified and adapted in relation to references from Santrock (2018) for attention, Case Smith and O'Brien (2010) for concentration, Jiménez-Soto et al., (2022) for frustration tolerance, Rueda and Cómbita (2017) for impulse control, and evaluated domains using a five-point Likert scale, which included age-based ratings for attention. Both tools were translated into Filipino and underwent review by a language editor. It is important to acknowledge that given the nature of the instrument, which made use of caregiver self-reports, there may have been biases that stemmed from social and cultural constructs, which may have limited the overall observational accuracy of the findings. Future studies are encouraged to incorporate more observational measures or multi-informant assessments.

In this study, caregiving approaches refer to caregiver mediation strategies toward children's digital device use and are classified as restricted, unrestricted, and with supervision. Restricted caregiving is characterized by strict limits on screen time, controlled access, and clear usage rules. Unrestricted caregiving allows digital device use with minimal to no limitations or monitoring. Caregiving with supervision involves active caregiver presence, guidance, and monitoring during digital use. Work behaviors, on the other hand, refer to behaviors that support task engagement and learning, operationalized through caregiver-reported ratings of attention, concentration, frustration tolerance, and impulse control. Higher scores indicate better quality work behaviors, reflecting greater ability to sustain focus, regulate impulses, manage frustration, and persist in task performance. In the frustration tolerance subscale of the work behavior questionnaire, selected negatively worded items were reverse-scored during data processing to ensure that higher scores consistently reflected better frustration tolerance.

Data analysis

After the data gathering phase, encoded data were analyzed using SPSS Version 29. Descriptive statistics (frequency, mean, and standard deviation) summarize demographic and score distributions. Spearman's Rank Correlation Coefficient (ρ) measured the relationship between caregiving approaches and work behaviors. Kruskal–Wallis *H* and Dunn's Post Hoc test identified group differences. The level of significance was set at $p < 0.05$, and correlation strength was interpreted based on standard categories: very weak (0.00–0.19), weak (0.20–0.39), moderate (0.40–0.59), strong (0.60–0.79), and very strong (0.80–1.00).

RESULTS

Sample characteristics

Seventy-five caregivers of digitally fixated children participated in the study. Most of the children were two years old (n=21) or five years old (n=22). Smaller groups were three years old (n=13) and four years old (n=19). Caregivers were mostly adults in their twenties (n=34) and thirties (n=23). Fewer were in their forties (n=10) and fifties (n=2), with only one caregiver older than sixty. Five caregivers were younger than twenty.

Caregiving approaches

Table 1. Distribution of caregiving approaches.

Caregiving approach	Frequency (n)	Percentage (%)
Restricted	51	68.0
Supervised	22	29.3
Unrestricted	2	2.7
Total	75	100.0

Table 1 shows that the restricted caregiving approach was predominant (n=51), supervised was used by 22 caregivers, and unrestricted by 2 caregivers. The overall mean caregiving approach score was 3.13 (SD=0.16), indicating that the restricted caregiving approach was predominantly used by caregivers of

Quality of work behaviors

Table 2. Quality of caregiver-reported work behaviors.

Category	Frequency (n)	Percentage (%)
Good	2	2.7
Above Average	25	33.3
Average	38	50.7
Below Average	10	13.3
Total	75	100.0

children aged 2 to 5 years old in Cavite.

Work behaviors were assessed across four domains: attention, concentration, frustration tolerance, and impulse control. As shown in Table 2, most children were rated as having average (50.7%) and above average (33.3%), followed by below average (13.3%), and good (2.7%).

Correlation between caregiving approaches and work behaviors

Table 3. Correlation between caregiving approaches and work behaviors.

Variable	ρ (rho)	*P*-value	Interpretation
Caregiving approaches Work behaviors	0.12	0.31	Very weak correlation

Note. Spearman's Rank Correlation Coefficient was used. Values marked with $p < 0.05$ (*) and $p < 0.01$ (**) indicate statistical significance.

Table 3 presents the correlation between caregiving approaches and overall work behaviors. Spearman's rank correlation revealed a very weak positive but non-significant relationship between caregiving approaches and total work behavior scores ($\rho = 0.120$, $p = 0.307$). This indicates no statistically significant association between the level of caregiver approaches and overall work behaviors.

Significant differences among the work behaviors based on the caregiving approaches

Table 4. Significant differences among the work behaviors based on the caregiving approaches.

Caregiving approaches	N	Median	Mean	*H*	*P*	Significant Pair(s)
Unrestricted Supervised Restricted	2 22 51	3.01 2.90 3.37	28.50 26.07 44.14	10.79*	0.005	Restricted > Supervised

Note. *Significance level at $\alpha = 0.05$. Post hoc Dunn test revealed a significant difference between restricted and supervised groups.

Table 4 determines whether there were significant differences in work behaviors based on the caregiving approach employed. Results indicated a significant difference among the three groups, $H = 10.79$, $P = .005$. Mean ranks showed that children under the restricted approach had higher work behavior scores (mean rank = 44.14) than those under supervised (26.07), and unrestricted (28.50) approaches. Dunn's post hoc test confirmed that the restricted vs. supervised pair showed a statistically significant difference ($p < .05$), while other pairs did not.

While significant differences were observed across caregiving approaches, the extremely small number of participants in the unrestricted caregiving group (n=2) should be interpreted with caution. Such a limited group size may reduce the statistical stability of comparisons involving this category and restrict the extent to which findings related to unrestricted caregiving can be generalized. Consequently, results pertaining to this group should be viewed as preliminary rather than conclusive.

Summary of findings

The analysis produced four major findings. First, restricted caregiving was the most common approach among caregivers of digitally fixated children aged two to five years in Cavite. Second, most children exhibited average to above-average work behaviors across the domains measured. Third, no significant correlation was found between caregiving approach and the overall work behavior score. Finally, a significant difference in work behavior scores was found among caregiving approaches, where children under the restricted caregiving approach displayed higher scores compared to those under the supervised and unsupervised approaches.

DISCUSSION

Caregiving approaches

Previous studies have shown that caregivers often use the restricted caregiving approach by limiting gadget exposure to prevent negative influences from online content (Lunkenheimer et al., 2023) and protect children's safety from sharing personal information (Gür and Türel, 2022). In the supervised caregiving approach, parents often co-view with their children as a form of bonding (Elias and Sulkin, 2019), to ensure safety and content appropriateness through parental controls (Gür and Türel, 2022; Lunkenheimer et al., 2023). Meanwhile, the unrestricted caregiving approach is often adopted when caregivers are preoccupied with work or household duties, using gadgets to occupy children or ease transitions (Elias and Sulkin, 2019).

Quality of work behaviors

Attention

Digitally fixated children aged 2 and 5 years demonstrated an "above average" attention span, while those aged 3 and 4 years were rated "average." Two-year-olds showed particular strength in maintaining interest, following directions, and completing activities, whereas older children exhibited "average" to "above average" attention across tasks such as following multi-step commands. This difference may be due to the developmental capabilities of said children, which emphasizes on the sequential acquisition of skill based on age. Overall, attention levels ranged from "average" to "above average," aligning with Santrock (2018) on typical early childhood attention development and supported by Carreiro (2012), who noted that exposure to educational digital content may enhance attention span, consistent with

the findings that responsible use of digital devices may positively influence children's attention.

Concentration

Findings revealed that children exhibited generally "average" concentration levels across most activities, such as maintaining focus despite distractions, staying on task, and concentrating even when excited, while higher concentration ("above average") was observed when engaging with music or new tasks. These results align with Santrock (2018), who stated that even at age three, children can sustain focus on tasks like puzzles despite fine motor challenges and Case-Smith and O'Brien (2010), who emphasized that attention and motivation enhance task performance, supporting the observation that children stayed focused despite distractions. Overall, the findings suggest that children demonstrate good concentration if strengthened by stimulating and structured tasks despite environmental and motor challenges, which is consistent with developmental literature.

Frustration tolerance

The results indicated that children generally exhibited an "average" level of frustration tolerance, as they were able to persevere through challenging tasks and tolerate emotional discomfort without easily giving up. These findings align with Jiménez-Soto et al. (2022), who emphasized that good frustration tolerance aids emotional regulation. Conversely, children with lower frustration tolerance may exhibit tantrums or withdrawal (Espinosa and Guerrero, 2019), which may hinder the development of self-regulation.

Impulse control

Data showed that the majority of the children aged 2 to 5 years demonstrated "average" impulse control as they tended to approach tasks carefully and often paused and thought carefully before making decisions. These results suggest that structured environments with consistent behavioral expectations foster good self-regulation and that clear rules and consistent limits support the development of patience and impulse control, consistent with Firmansyah and Putri (2024). Conversely, excessive unregulated screen exposure may heighten impulsiveness and reduce the tolerance to delayed gratification (Samhan and Ruane, 2021). Overall, the results suggest children had generally good impulse control despite digital exposure, but studies emphasize the importance of balanced and regulated use of digital devices to prevent impulsive behaviors from emerging.

Correlation between caregiving approaches and work behaviors

These findings contrast with previous studies such as Nikken and de Haan (2015), Firmansyah and Putri (2024), and Anitha et al. (2021), which reported that active parental mediation, structured digital use, and supervised digital engagement were associated with improved self-regulation and more favorable developmental outcomes, which suggests a stronger relationship between caregiving style and children's behavior. However, several factors may explain the discrepancy. First, most children in the sample demonstrated "average" to "above average" work behaviors across caregiving types, which limited variability and reduced the likelihood of detecting significant group differences. Second, because caregiver ratings were self-reported, responses may reflect perceptions rather than actual observed behaviors, potentially influenced by social desirability or limited observation, resulting in compressed response patterns. Lastly, the caregiving approach alone may not fully account for behavioral outcomes, as factors such as child temperament, digital content type and quality, and family routines, unexamined in this study, may also contribute.

The correlation analysis examined whether caregiving approaches and work behaviors showed a consistent linear relationship across all participants, which was difficult to detect due to limited variability in scores and uneven group sizes. In contrast, the Kruskal–Wallis test compared work behavior scores across distinct caregiving groups, making it more effective in identifying differences between approaches. Although the correlation analysis showed no significant relationship between caregiving approach and work behaviors at the individual level, the group comparison revealed meaningful differences in work behaviors when children were classified by caregiving approach. This suggests that the caregiving approach does not predict work behaviors for each child, but it does influence how groups of children differ in attention, concentration, frustration tolerance, and impulse control during task engagement. As such, restricted caregiving provides a structured and controlled environment that supports more organized and regulated work behaviors, even when individual variability remains high.

Significant differences in the work behaviors based on the caregiving approaches

The results of the Kruskal-Wallis H test revealed a statistically significant difference in children's work behavior based on caregiving approach, with Dunn's post hoc test showing that those under a restricted caregiving approach demonstrated significantly higher levels of work behavior compared to those under a supervised approach, which could be attributed to the amount of digital use that the child was exposed to, and the caregivers' attitude towards digital use. This finding aligns with Benedetto and Ingrassia (2021), who reported that restrictive mediation, such as enforcing strict control over children's digital use, is more effective among younger children with limited digital literacy. The same study identified key elements of restrictive caregiving, such as promoting age-appropriate social activities and avoiding prolonged nighttime screen use, all of which contribute to healthier work behaviors in children aged two to five. In contrast, unrestricted caregiving was linked to reduced attention and concentration, as supported by Kirkorian et al. (2009, as cited in Bozzola et al., 2018), who found that frequent media device use disrupted play and parent-child interactions, decreasing opportunities for milestone development and self-regulation.

While these results emphasize the benefits of structured digital boundaries, other influences, such as caregiver habits, media content, peer interactions, and family routines, may also shape children's behaviors. Comidoy-Acol (2024) found that family bonding through media and virtual communities impacted emotional regulation and digital experiences, depending on caregiver digital literacy. Thus, while the caregiving approach remains a key determinant, child development outcomes are shaped by multiple interacting factors, including temperament, cognitive growth, caregivers' perception of digital use, cultural attitudes affecting caregiving approaches, and environmental structure. In application to the occupational therapy practice, the results provide a favorable basis; however, it was acknowledged that the results presented

certain limitations, especially the limited quantity of caregiving approaches. Nonetheless, the data may be used to utilize and recommend digital management strategies and family-centered interventions to promote a meaningful and purposeful engagement and participation in the children's development.

CONCLUSION

This study examined how caregiving approaches to digital device use (restricted, unrestricted, and with supervision) affect work behaviors (attention, concentration, frustration tolerance, and impulse control) among children aged two to five with digital fixation. The restricted approach was most common, and children generally demonstrated average to above-average work behaviors. Spearman's Rank Correlation revealed a very weak relationship between overall caregiving approach and work behaviors; however, further analysis indicated that children under restricted caregiving had significantly higher work behavior scores than those under supervised care. This finding aligns with evidence that limited digital use supports better behavioral outcomes, suggesting that consistent structure and clear limits help strengthen work behaviors during task performance. Incorporating these practices in early childhood programs may support occupational performance by encouraging active exploration alongside balanced technology use.

All outcome variables were based on caregiver-completed questionnaires, which may reflect subjective interpretation or social desirability bias, affecting accuracy. To address this, the study used developmentally informed tools, ensured anonymity, and conducted expert review and reliability testing. Despite these steps, reliance on a single informant remains a limitation. The unrestricted group was underrepresented, limiting statistical stability and generalizability. Future research should include behavioral observation, teacher reports, and multi-informant assessments.

RECOMMENDATION

- For future research directions, use longitudinal designs to examine the long-term effects of early caregiving approaches to digital device use on children's work behaviors and assess these behaviors across home and school settings using validated observational and multi-informant tools rather than relying solely on caregiver reports.
- In terms of methodological improvements, refine and validate assessment tools by incorporating interviews during data collection, and conducting studies early in the school year to improve access to diverse caregivers and institutions.
- Examine the combined effects of caregiving strategies, quality of digital content, and duration of screen use to better explain children's cognitive and emotional development and provide practical, contextualized guidance.
- For caregivers, teachers, and occupational therapists, encourage co-viewing, age-appropriate and meaningful content, balanced routines combining screen-based and hands-on activities, and consistent modeling of healthy screen habits; occupational therapy practitioners can use digital devices intentionally within interventions and caregiver education rather than viewing them solely as barriers.
- For policy and stakeholder-related actions, develop Philippine-contextualized guidelines on age-appropriate screen time, strengthen digital safety regulations for children, and use this study's tools as a reference for improved, locally relevant measures to support caregivers, educators, and communities.

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AUTHOR CONTRIBUTIONS

J.R.A: Conceptualization, data gathering, writing, revision. M.B: Conceptualization, consultation, revision, A.C.C: Conceptualization, data gathering, writing, revision. AMC: Conceptualization, data gathering, writing, revision. P.H: Conceptualization, data gathering, writing, revision. K.M.L: Conceptualization, data gathering, writing, revision. V.C.M: Conceptualization, data gathering, writing, revision. K.A.S: Conceptualization, data gathering, writing, revision. S.L.S: Conceptualization, data gathering, writing, revision.

DECLARATION

Informed consent statement

The researchers followed the ethical principles of autonomy, beneficence, non-maleficence, and justice throughout the conduct of the study as approved by the Research Ethics Reviewer of DLSMHSI CRS, Ms. Maria Luisa Valenzuela, OTRP, MAESPED. Participation was voluntary, and respondents were informed that they could withdraw from the research at any point without consequences. All data were kept strictly confidential, and no identifying information was included in the reports or statistical files. To ensure the safety of the child participants, only the caregivers answered the questionnaires, and no child was directly subjected to testing or observation that might cause distress or harm.

Conflict of interest

This manuscript describes original work not published elsewhere and not under review by any other journal. All co-authors have read and approved the final version submitted. There is no conflict of interest to declare.

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