DIGITAL PARENTING: THE ROLE OF PARENTAL MEDIATION IN CHILDREN'S SCREEN TIME AND COGNITIVE DEVELOPMENT

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Abstract

In today's digital age, children are increasingly exposed to screen-based technologies that can influence their cognitive development both positively and negatively. This study explores the role of parental mediation in managing children's screen time and its perceived impact on cognitive functions such as attention, memory, and language development. Adopting a qualitative, phenomenological research design, semi-structured interviews were conducted with 15 parents of children aged 4 to 12 in Keffi, Nasarawa State, Nigeria. The thematic analysis revealed four major themes: patterns of screen time usage, parental mediation strategies, perceived cognitive outcomes, and barriers to effective mediation. Findings indicate that active mediation characterized by discussion, co-viewing, and guidance was associated with enhanced vocabulary, improved recall, and greater focus. Conversely, passive or unregulated screen time was linked to reduced attention span and difficulty concentrating. Parents also reported challenges such as digital illiteracy, fatigue, and peer influence that limited their ability to monitor screen use effectively. The study highlights the need for targeted digital literacy programs, culturally relevant parenting support, and policy initiatives that emphasize the cognitive implications of screen exposure. These findings underscore the critical role of informed parental involvement in optimizing children's cognitive development in a media-saturated environment.

Key Words: digital parenting, children screen time, cognitive development

Introduction

The pervasive presence of digital technology in contemporary family life has redefined the dynamics of parenting, particularly in how children engage with screen-based media. In recent years, the discourse on digital parenting has shifted from concerns about screen time limits to more nuanced understandings of how parents mediate and regulate their children's interaction with digital devices. This growing body of research underscores the significance of parental involvement in shaping children's digital experiences, with implications for cognitive development, behavioural regulation, and academic outcomes (Livingstone et al., 2017; Blum-Ross & Livingstone, 2018). Children today are growing up in media-saturated environments where screens are not just tools for entertainment but also for learning, socialization, and exploration. While early exposure to digital content has been associated with both cognitive benefits such as improved visual-spatial skills and early literacy (Linebarger & Vaala, 2010) and developmental risks, including attention problems and reduced executive functioning (Christakis et al., 2018), the quality of parental mediation appears to be a moderating factor. Parental mediation refers to the strategies employed by caregivers to guide, monitor, and co-engage with children's media use. These strategies ranging from restrictive mediation and active discussion to co-viewing can influence how children interpret content and integrate it into their cognitive and emotional schemas (Nathanson, 2001; Nikken & Schols, 2015).

Despite growing interest in the topic, much of the existing literature has been dominated by quantitative paradigms that tend to generalize experiences and overlook the cultural and contextual nuances of parental mediation. Particularly in African contexts, where technological access, literacy levels, and parenting styles may differ markedly from Western settings, there is a need for in-depth qualitative inquiry that captures parents' lived experiences, intentions, and challenges in mediating screen time. Understanding how parents in specific communities perceive and enact digital parenting is essential for developing culturally relevant guidance and policy (Chaudron et al., 2015; Okeke & Adebayo, 2021). This study, therefore, seeks to explore the role of parental mediation in children's screen time and cognitive development from a qualitative perspective. Through interviews and thematic analysis, the research aims to uncover how parents understand, negotiate, and implement digital parenting practices, and how these practices are perceived to impact children's cognitive outcomes. The findings are expected to contribute to the global dialogue on digital parenting by providing insights grounded in local realities and parental voices.

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Statement of the Problem

In the digital age, children's exposure to screen-based media has become nearly unavoidable, with implications for both their cognitive development and overall well-being. While research has highlighted both the potential benefits and harms of screen time ranging from enhanced digital literacy and visual-spatial skills to risks such as attention difficulties and impaired executive functioning (Christakis et al., 2018; Linebarger & Vaala, 2010) the moderating role of parents remains a critical but underexplored factor, especially in non-Western contexts. Parental mediation, which includes strategies such as active discussion, co-viewing, and restrictive control, has been identified as an essential mechanism for managing children's digital consumption and shaping the developmental outcomes associated with it (Nathanson, 2001; Nikken & Schols, 2015). However, much of the existing empirical work on digital parenting has been conducted in technologically advanced and culturally distinct settings, often employing quantitative designs that may obscure the everyday realities, cultural values, and contextual challenges faced by parents in other regions, such as Sub-Saharan Africa.

In Nigeria, where digital technologies are rapidly penetrating households but where socioeconomic disparities, digital literacy gaps, and traditional parenting values still persist, little is known about how parents actually perceive and mediate their children's screen time. There is a lack of qualitative research that captures the lived experiences, motivations, concerns, and strategies of Nigerian parents in the digital age. Without such contextually grounded understanding, policies and interventions aimed at promoting healthy digital habits may remain ineffective or culturally misaligned. This study, therefore, seeks to fill this gap by exploring how Nigerian parents mediate their children's use of screen media and how such mediation is perceived to influence children's cognitive development. By adopting a qualitative approach, the study aims to generate rich, nuanced insights that reflect the voices and realities of parents an essential step toward developing culturally responsive frameworks for digital parenting. In view of the issues raised, the following objectives would be looked upon:

1. To examine how Nigerian parents perceive and interpret their role in managing children's screen time within the context of increasing digital exposure.
2. To examine the specific parental mediation strategies (e.g., active mediation, co-viewing, restrictive mediation) employed by Nigerian parents in regulating children's use of digital media.
3. To investigate Nigerian parents' perceptions of how screen time affects their children's cognitive development, including attention, memory, and learning.
4. To identify the socio-cultural, economic, and contextual factors that shape parental decisions and practices related to digital parenting in Nigeria.
5. To explore contextually grounded insights that can inform culturally appropriate policies, guidelines, and interventions for effective digital parenting.

Theoretical Review

This study is anchored on a blend of interrelated theoretical frameworks that explain the interaction between parental involvement, digital media use, and child cognitive development. These include **Parental Mediation Theory, Vygotsky's Sociocultural Theory, Bronfenbrenner's Ecological Systems Theory,** and **Cognitive Load Theory.** Each theory contributes a critical perspective to exploring how digital parenting practices, especially parental mediation, influence children's experiences with screen-based media and their cognitive growth.

Parental Mediation Theory, initially developed in media and communication studies, provides a foundational lens for understanding how parents regulate their children's media consumption. This theory outlines three primary mediation strategies (Nathanson, 1999; Valkenburg et al., 1999):

- **Active Mediation** involves parents discussing media content with children, asking questions, or offering explanations. This strategy is linked to higher levels of critical thinking and learning from media.
- **Restrictive Mediation** refers to setting rules about the time, content, or circumstances under which media may be used.
- **Co-viewing/Co-use** involves parents engaging with media alongside their children without necessarily discussing its content.

Recent extensions of the theory have included technical mediation (use of filters or apps to control content) and monitoring (checking media history). Research suggests that active mediation tends to promote better cognitive and behavioural outcomes, whereas overly restrictive mediation may lead to reactance or secretive behaviour (Nikken & Schols, 2015). In the context of Nigerian families, parental mediation may be shaped not only by intentions to protect or educate children but also by cultural values, digital literacy levels, and socioeconomic realities. For example, parents in urban versus rural communities may have differing views on the necessity or

appropriateness of certain media platforms. Thus, this theory helps in categorising and interpreting the diverse strategies Nigerian parents use in digital parenting.

Lev Vygotsky's Sociocultural Theory emphasises that children's cognitive development is rooted in social interactions and mediated by cultural tools including language and technology (Vygotsky, 1978). Learning occurs in the Zone of Proximal Development (ZPD), which is the distance between what a child can do independently and what they can achieve with guidance from a more knowledgeable other. From this perspective, digital media can serve as both a tool for learning and a social environment, depending on how it is used. Parental mediation plays a crucial role in helping children navigate this space. For instance, a parent who co-engages with an educational app can scaffold the child's understanding and help them internalise new skills or knowledge. Conversely, unguided exposure may lead to passive consumption that is less cognitively stimulating. In the Nigerian context, Vygotsky's theory draws attention to the importance of interpersonal interaction, family dialogue, and culturally relevant support systems in children's digital experiences. Parents' roles go beyond restriction; they become **active co-constructors** of meaning in the digital lives of their children.

Urie Bronfenbrenner's Ecological Systems Theory (1979) provides a holistic view of child development as occurring within nested environmental systems that influence each other:

- Microsystem: immediate environments like family, school, and peers.
- Mesosystem: interactions between microsystems (e.g., parent-teacher collaboration).
- Exosystem: external influences that indirectly affect the child, such as parental work schedules or community norms.
- Macrosystem: cultural ideologies, socioeconomic systems, religious values, and national digital policies.
- Chronosystem: historical and temporal dimensions (e.g., technological evolution, post-pandemic digital shifts).

This theory highlights that digital parenting is not isolated it is influenced by the broader social, cultural, and policy context. For instance, in Nigeria, a parent's ability to mediate digital content is shaped by their own exposure to technology, cultural norms about child-rearing, financial access to digital devices, and possibly state-level educational policies. Bronfenbrenner's model supports a context-sensitive analysis, allowing researchers to explore how Nigerian parents' mediation efforts are embedded within, and influenced by their environmental conditions.

Cognitive Load Theory Developed by John Sweller (1988), focuses on how the mental demands of learning affect the capacity of working memory. It identifies three types of cognitive load:

- Intrinsic load: complexity inherent in the learning task.
- Extraneous load: cognitive demands imposed by poorly designed instruction or distractions.
- Germane load: cognitive resources dedicated to processing and understanding material.

This theory is relevant to screen time and digital parenting because not all screen content is cognitively equal. Educational programs or interactive apps may encourage problem-solving and memory use, while fast-paced or passive content may overload or bypass cognitive processes. Parental mediation can reduce extraneous load by guiding children through challenging content, helping them pause and reflect, or choosing age-appropriate material. In effect, parents serve as cognitive filters, enhancing learning potential while mitigating distractions or overstimulation. This is especially important in low-structure environments, such as unmonitored mobile phone use, where children may be exposed to cognitively taxing or developmentally inappropriate content.

Synthesis and Theoretical Implication for the Study

By integrating these theories, this study views digital parenting as both a behavioural framework (Parental Mediation Theory), a social interaction (Vygotsky), and a culturally embedded practice (Bronfenbrenner). The effectiveness of parental mediation is not just a function of personal choices but is deeply shaped by context, environment, and child-parent interaction. Cognitive Load Theory, in turn, provides an explanatory link between the nature of digital content and its developmental effects. These theoretical perspectives collectively inform the study's approach to examining how Nigerian parents manage children's screen exposure and how such practices are perceived to influence cognitive outcomes such as attention span, memory development, reasoning, and learning behaviours. The qualitative methodology of this study is thus designed to explore not just what parents do, but why they do it, how they understand it, and how they experience its effects within their unique cultural and contextual realities.

Literature Review

In recent years, a growing body of literature has explored the cognitive consequences of children's exposure to digital screens, particularly in early developmental stages. Cognitive development, encompassing attention span, memory, problem-solving, and executive functioning, has been found to be susceptible to the effects of prolonged or unsupervised screen use. According to Madigan et al. (2020), children with higher screen time during preschool years tend to show lower performance on tasks that assess executive functioning, including inhibitory control and working memory. This aligns with findings by McArthur et al. (2021), who observed that screen time exceeding one hour daily in young children was associated with reduced cognitive flexibility and academic preparedness. However, it is not merely the duration of screen exposure that matters; the context in which media is consumed including the role of parental involvement significantly influences developmental outcomes. Parental mediation has emerged as a key moderating factor. Valkenburg et al. (2021) distinguish between various mediation strategies, including active mediation (discussing content with the child), restrictive mediation (limiting time or content), and co-viewing (watching together without overt commentary). These strategies yield different outcomes. For instance, co-use and active mediation have been linked with enhanced language development and problem-solving skills, as they often stimulate conversation and engagement around the content being consumed (Chaudron et al., 2022).

In contrast, restrictive mediation especially when overly rigid or disconnected from dialogue may be less effective in promoting cognitive engagement and may sometimes lead to oppositional behaviour or secretive media use among older children (Nikken & Schols, 2020). Nonetheless, in younger children, moderate restrictions still play a protective role by reducing the cognitive overload caused by overstimulation, fast-paced animations, or inappropriate content (Domoff et al., 2020). Thus, a balanced and context-aware approach to mediation appears crucial. The dynamics of parental screen behaviour itself also warrant attention. A phenomenon known as "technoference" referring to the interruptions in parent-child interactions due to parental use of digital devices has been shown to negatively affect children's attention and language development. McDaniel and Radesky (2020) note that when parents are distracted by their phones during interactions, children are likely to receive fewer conversational turns and less responsive feedback, both of which are vital for vocabulary acquisition and socio-cognitive learning. Additionally, cognitive development is not shaped solely by direct screen interaction but also through broader relational and environmental factors. For example, Li et al. (2021) found that secure parent-child attachment particularly when supported by warm and responsive parenting was associated with reduced dependency on screen time and greater emotional self-regulation in children, which in turn correlated with better academic and cognitive performance. This suggests that digital parenting should be understood as part of a wider constellation of care giving practices. Furthermore, socioeconomic factors, digital literacy, and cultural norms influence the way parents mediate children's screen use. In low- and middle-income contexts such as Nigeria, limited access to educational content, parental stress, and lower levels of digital awareness may hinder parents' ability to engage in active mediation (Abubakar et al., 2022). These contextual factors highlight the need for culturally grounded, context-sensitive studies that investigate how parental mediation unfolds in everyday family life, and how such practices are perceived to impact children's learning and development.

Taken together, the literature suggests that while screen time in itself poses certain cognitive risks, the mediating role of parents can significantly influence outcomes. The quality of parental engagement both in relation to media and the child emerges as a critical variable. However, much of the existing research is quantitative and Western-centric, leaving a gap in our understanding of how parents in non-Western, low-resource settings experience and respond to the challenges of digital parenting. This study aims to address that gap by exploring the lived experiences of Nigerian parents in mediating their children's digital exposure, with a focus on how these practices influence perceived cognitive development.

Methodology

This study adopted a qualitative research design to explore the role of parental mediation in children's screen time and its perceived impact on their cognitive development. A qualitative approach was deemed appropriate as it enables an in-depth examination of the subjective experiences, beliefs, and practices of parents as they navigate digital parenting. It also allows for rich, contextual insights into how screen time is managed and its influence on children's cognitive behaviours as perceived by their caregivers.

The target population for this study consisted of parents and guardians of children aged between 3 and 12 years who regularly engage with digital devices at home. Participants were purposively selected to ensure they had

relevant experience in managing children's screen exposure. A purposive sampling technique was employed to identify participants who met the inclusion criteria: Must be a parent or primary caregiver, have at least one child within the specified age range and have regular exposure to digital parenting responsibilities A total of 15 participants were selected until data saturation was reached i.e., the point at which no new themes or significant insights emerged from additional interviews.

Data was collected using **semi-structured, in-depth interviews,** allowing participants to express their thoughts freely while also ensuring consistency in the themes explored across interviews. The interview guide contained open-ended questions focusing on:

- The nature and extent of children's screen time
- Types of parental mediation strategies employed
- Perceptions of how screen use affects children's attention, memory, and learning
- Challenges faced in regulating screen time
- Cultural and contextual influences on digital parenting practices

Each interview lasted between 45 to 60 minutes, and participants were given the choice of a face-to-face, phone, or virtual session (Zoom or WhatsApp video call), depending on their convenience. All interviews were audio-recorded with informed consent and later transcribed verbatim for analysis.

Thematic analysis was used to analyse the data. Transcripts were first read multiple times to gain familiarity, followed by coding of key concepts and phrases. Codes were then grouped into themes and sub-themes based on patterns that emerged across the data set. This process followed the six-phase approach by Braun and Clarke (2006):

1. Familiarization with the data
2. Generation of initial codes
3. Searching for themes
4. Reviewing themes
5. Defining and naming themes
6. Producing the final report

NVivo software (or manual coding, depending on preference) was used to organize the codes and streamline the analytic process.

Results

Thematic analysis of the interview data yielded four major themes and several sub-themes reflecting the complex role of parental mediation in children's screen use and perceived cognitive outcomes.

Theme 1: Patterns of Screen Time Usage

Sub-theme 1.1: Screen Time as a Default Leisure Activity

Most parents reported that screen time had become a regular part of their children's daily routine, especially after school hours.

"Immediately he gets back from school, the first thing he wants is the tablet, even before removing his shoes." (P7, mother of 7-year-old boy) note P means parent.

Sub-theme 1.2: Increase in Screen Use during Parental Absence

Participants acknowledged that screen exposure tends to increase when parents are busy, absent, or tired.

"When I'm not home, I know they watch more than they're supposed to. It's easier for the nanny to let them be with the TV." (P3, father of two)

Theme 2: Parental Mediation Strategies

Sub-theme 2.1: Active Mediation through Conversation

Several parents made efforts to discuss what their children watched and used these moments to reinforce learning.

"We sit and talk about what they saw. I ask questions like, 'What did you learn?' It helps me know what's going into their head." (P12, mother of 9-year-old girl)

Sub-theme 2.2: Restrictive Mediation via Rules and Schedules

Some parents set clear time limits and device usage rules, especially on school days.

"There's a two-hour rule in my house. After that, screens go off, and books come out." (P5, single father of 8-year-old twins)

Sub-theme 2.3: Digital Co-viewing and Shared Activities

A few participants highlighted co-viewing or playing educational games together as a bonding and supervisory method.

"We play some of the spelling games together. She likes it better when I'm involved." (P9, mother of 6-year-old)

Theme 3: Perceived Cognitive Effects of Screen Time

Sub-theme 3.1: Enhancement of Vocabulary and Memory

Many parents observed improvements in language skills and recall when children were exposed to educational content.

"She learned the names of animals and even speaks some words in French just from her YouTube cartoons." (P2, father of 5-year-old girl)

Sub-theme 3.2: Decreased Attention Span and Hyperactivity
Conversely, some parents noticed that unregulated screen use resulted in difficulty concentrating and irritability.

"If he spends too much time watching cartoons, it becomes hard to get him to focus on homework. He gets restless." (P11, mother of 10-year-old boy)

Theme 4: Barriers to Effective Mediation
Sub-theme 4.1: Parental Fatigue and Digital Illiteracy
Parents acknowledged their own limitations in managing screen time, citing exhaustion or lack of digital knowledge.

"After work, I'm too tired to start checking what he's watching. Sometimes I just let it go." (P6 and P15, working mother of three)

"They're smarter with the phone than I am. I don't even know how to block some things." (P13, grandmother)

Sub-theme 4.2: Peer Influence and Child Resistance
Peer comparison and child resistance also emerged as significant challenges in enforcing screen limits.

"She says all her classmates have phones and watch TikTok. It's tough to say no when she feels left out." (P8, mother of 11-year-old girl)

Summary of Findings
The results highlight that parental mediation strategies vary significantly across households and are shaped by parental awareness, availability, and digital literacy. While intentional and active mediation is associated with positive cognitive outcomes, lax or inconsistent control often leads to attention issues and behavioural difficulties. Challenges such as fatigue, peer pressure, and limited digital know-how hinder effective screen regulation.

Discussion
This study explored the experiences of parents in mediating their children's screen time and the perceived impact on cognitive development. The findings provide insight into the varied mediation strategies parents adopt, the challenges they face, and their observations on how screen time affects their children's attention, memory, and language development. The study revealed three dominant forms of parental mediation: active mediation, restrictive mediation, and co-viewing, consistent with prior research (Nathanson, 2021). Parents who engaged in active mediation discussing content, asking reflective questions, and reinforcing learning reported more positive cognitive outcomes, including vocabulary expansion, better memory retention, and increased curiosity. This aligns with Vygotsky's Sociocultural Theory, which posits that learning is facilitated through guided interaction within a child's social environment (Vygotsky, 1978). When parents act as active co-learners, they scaffold children's understanding, leading to meaningful cognitive engagement. On the other hand, restrictive mediation, while helpful in limiting excessive screen exposure, was often enforced rigidly and sometimes met with resistance from children. While this strategy helped maintain screen balance, its cognitive benefits appeared less direct unless paired with explanatory conversations or educational substitution. Parents who practiced co-viewing described stronger emotional bonds and a better ability to interpret and redirect children's digital interests into educational content. This echoes Bandura's Social Learning Theory (1986), which emphasises observational learning. When parents model attentive, critical viewing, children tend to adopt similar behaviours.

Parents in this study acknowledged both positive and negative effects of screen time. Exposure to age-appropriate and interactive content was seen to promote vocabulary development, early reading, and memory improvement findings consistent with studies by Livingstone et al. (2020) and Linebarger & Vaala (2021), which found that quality screen content can contribute to early cognitive growth. However, many also reported attention deficits, restlessness, and reduced task persistence following long hours of unregulated screen use. This supports recent evidence that excessive screen time especially passive or fast-paced content may reduce children's attentional capacity (Christakis, 2019). Some parents described struggles with getting children to concentrate on schoolwork or engage in offline learning activities, highlighting the importance of balancing digital engagement with traditional play and interpersonal interaction.

A significant finding was the challenge of parental fatigue, digital illiteracy, and time constraints, particularly among working parents or caregivers with multiple responsibilities. These factors often undermined parents' intentions to regulate screen use consistently. This corroborates the research by Nikken & Schols (2015), which found that parents' digital literacy and perceived self-efficacy significantly influence their

mediation efforts. In addition, peer pressure and child resistance were prominent themes. Many parents felt caught between enforcing screen boundaries and accommodating their children's desire to fit in with peers who have unrestricted access. These tensions underscore the social dimensions of digital parenting in a connected age.

Implications for Practice and Policy

The findings suggest that empowering parents through digital literacy education, parenting workshops, and community-based support systems can enhance their mediation capacity. Programs that teach practical ways to manage screen time, recommend educational content, and foster communication around media use may be particularly beneficial. For NGOs and education authorities, this points to the need for interventions that not only promote safe screen use but also equip parents with culturally relevant strategies to support their children's holistic development in a digital world.

Limitations and Recommendations for Future Research

This study was limited by its relatively small sample size and geographic scope, which may not fully represent broader cultural or socioeconomic contexts. Future research could adopt a mixed-methods design, including direct observation or child assessment tools to triangulate parents' reports. In addition, exploring the role of fathers versus mothers, rural versus urban settings, and children's own perspectives would deepen understanding of digital parenting dynamics in Nigeria and similar contexts.

Conclusion

This study examined how parental mediation influences children's screen time habits and the perceived effects on their cognitive development. The findings underscore the pivotal role of parents not only in limiting screen exposure but also in shaping the *quality* of children's digital engagement. Parents who adopted active and engaged mediation strategies reported more favourable cognitive outcomes, such as improved vocabulary, memory recall, and critical thinking. These parents often encouraged educational content, facilitated discussions, and modeled reflective viewing. Conversely, children whose screen time was unregulated or passive often displayed signs of reduced attention span, restlessness, and difficulty with offline learning tasks. Importantly, the cognitive impact of screen use is not solely determined by screen time duration, but by *how* that time is structured, supervised, and contextualized. The findings highlight that digital devices, when used with guided interaction and appropriate content, can support cognitive development. However, inconsistent or uninformed mediation can expose children to content and habits that hinder focus, problem-solving, and language acquisition. Parental challenges such as digital illiteracy, fatigue, and peer pressure further complicate efforts to maintain healthy digital routines, suggesting that many parents need support in navigating the digital parenting landscape effectively.

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