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Play-Based Learning in the Digital Age: Reconciling Screen Time with Developmental Needs

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Abstract
This qualitative study explores the alignment between digital screen time and developmental needs within play-based learning for early childhood education in Narowal, Pakistan. Grounded in Piaget's Cognitive Development Theory and Vygotsky's Sociocultural Theory, the research examines how digital engagement influences cognitive, social, and emotional development among young learners aged 3 to 7 years. A purposive sampling technique was employed to select information-rich participants directly involved in early childhood education and digital media use. The final sample included 20 participants, comprising 10 early childhood educators and 10 parents of children in the specified age group. Data were collected through semi-structured, in-depth interviews and analyzed thematically to identify major patterns in perceptions and practices. Findings revealed that while digital tools enhance engagement, introduce children to new learning opportunities, and support cognitive stimulation, concerns remain regarding overexposure to screens, reduced physical play, and limited interpersonal interactions. Participants emphasized the need for moderation, adult guidance, and the integration of interactive, age-appropriate content that aligns with developmental milestones. Teachers and parents acknowledged both the educational potential and the behavioral risks associated with screen-based learning. The study recommends a balanced approach to digital integration in early childhood education, combining screen-based learning with traditional play-based methods. It also advocates for professional development in digital pedagogy for teachers, awareness campaigns for parents, and the development of policy guidelines tailored to the cultural and contextual realities of early learners in Pakistan. By situating digital tools within a developmentally appropriate framework, the study contributes to the discourse on sustainable digital practices in early education, ensuring that children's holistic growth remains the central focus in the digital age.

Keywords: Play-Based Learning in the Digital Age, Reconciling Screen Time, Developmental Needs

Introduction

In today's fast-changing world, children are growing up surrounded by digital devices smart phones, tablets, laptops, and smart TVs have become a part of daily life. At the same time, educational experts and child psychologists still emphasize the importance of play-based learning during early childhood. Play-based learning is widely recognized as a natural way for young children to explore the world around them, develop essential skills, and grow emotionally, socially, and cognitively (Whitebread et al., 2017). However, the increasing exposure to digital screens has sparked a major discussion in both education and parenting circles: How much screen time is too much, and can digital tools actually support learning through play rather than hinder it? There is no doubt that digital technology offers many opportunities. Interactive apps, digital games, and online learning platforms can help children build early literacy, math, and problem-solving skills (Neumann & Neumann, 2019). However, when screen use is unregulated or lacks educational value, it may reduce physical activity, affect social interaction, and interfere with healthy brain development. This raises a critical question can we find a balance between digital learning and traditional play? The answer may lie in how thoughtfully we integrate technology into play-based settings. This research explores how educators and parents can reconcile children's screen time with their developmental needs. Rather than simply limiting digital exposure, the goal is to understand how to use it purposefully so it supports play-based learning rather than replacing it. By examining real experiences, perspectives, and practices, this study aims to offer practical solutions and guidance for parents, teachers, and curriculum developers. Understanding this balance is especially important in a post-COVID world, where digital tools are more present than ever in classrooms and homes.

1.1 Research Objectives

1. To explore how digital tools and screen-based activities can be meaningfully integrated into play-based learning without negatively affecting children's development.
2. To examine the perceptions of early childhood educators and parents regarding screen time, its impact, and its potential as a tool for enhancing learning through play.

1.2 Research Questions

1. In what ways can digital screen time be aligned with the developmental goals of play-based learning in early childhood education?
2. What do teachers and parents think about the advantages and disadvantages of using digital technology for play and learning in young children?

1.3 Problem Statement

Play-based learning is one of the most effective teaching approaches for young children, yet it is being challenged by the increasing use of digital devices in both home and school settings. While technology is becoming an essential part of education, especially after the COVID-19 pandemic, there is a growing concern among educators and health professionals that too much screen time may interfere with children's developmental progress. The lack of clear guidelines on how to merge screen-based tools with play-based learning often leaves parents and teachers confused.

This research addresses this gap by exploring how technology can be used wisely in early education to support learning and development rather than undermine it.

1.4 **Rationale of the Study**

The growing influence of digital media in children's daily lives, there is a clear need to re-examine our approaches to early childhood education. Many parents and teachers feel torn between the educational potential of digital tools and the fear that screen time could lead to developmental problems. This study is important because it seeks to bridge this divide by exploring practical strategies to blend digital tools with play-based learning. The study will help clarify how technology can be used as a resource, not a replacement, and aims to support educators and parents in making informed choices for children's learning experiences in a digital world.

1.5 **Significance of the Study**

This study will contribute to ongoing discussions about digital learning and early childhood education. It is especially useful for parents, early years practitioners, and educational policymakers who are trying to understand how digital tools can be included in a child's learning journey without causing harm. The findings may help in developing training programs for teachers, awareness programs for parents, and policy guidelines for educational institutions to ensure technology supports, rather than replaces, play-based learning. Ultimately, this research aims to benefit children by promoting a more balanced and developmentally sound approach to learning in the digital age.

1.6 **Limitations of the Study**

Like any research, this study has some limitations. First, it may involve a relatively small number of participants, which means the results might not apply to all regions or cultural contexts. Second, the fast-changing nature of digital technology means that what works today may need to be adapted in the future. Finally, since much of the data will be based on people's opinions and experiences, there may be subjectivity in responses. However, these limitations will be carefully considered, and efforts will be made to ensure the findings are still useful and relevant.

The integration of digital technologies into early childhood education has triggered a paradigm shift in the way educators approach learning. Traditional play-based learning, long regarded as a cornerstone of early development, is now being supplemented or even replaced by digital tools. This literature review critically examines existing research on the intersection of play-based learning and digital screen use in early education. It identifies key contributions, current debates, and gaps in the literature while positioning the current study within this evolving field.

2. Literature Review

Play-based learning (PBL) has its roots in constructivist and developmental theories, especially those developed by Jean Piaget, Lev Vygotsky, and Maria Montessori. Piaget (1951) emphasized play as a mechanism through which children construct knowledge, while Vygotsky (1978) focused on the social dimension of play and its role in scaffolding cognitive development. The Montessori method (Montessori, 1967) promotes child-centered learning through purposeful, hands-on activities. These foundational theories underline the significance of active, exploratory, and imaginative play in developing problem-solving skills, social interaction, and emotional regulation. In recent decades, empirical research has affirmed the benefits of play-based

approaches. Whitebread et al. (2017) demonstrated that play supports metacognition, self-regulation, and collaboration in early learners. Pyle and Danniels (2017) reviewed classroom-based PBL and found that it enhances both academic and non-academic outcomes, suggesting that it is not only developmentally appropriate but pedagogically effective.

2.1 **Emergence of Digital Learning in Early Childhood**

The digitalization of education, especially after the COVID-19 pandemic, has brought about a surge in the use of tablets, apps, and digital platforms for young children. Neumann and Neumann (2019) examined how touchscreen devices can aid emergent literacy, showing that certain educational apps positively influence phonemic awareness and vocabulary development. Similarly, Marsh et al. (2015) found that digital games, when designed with educational intent, can support creativity, storytelling, and problem-solving. Scholars have raised concerns about the overuse and misapplication of digital technologies. The American Academy of Pediatrics (AAP, 2016) recommends limited and supervised screen time for young children, emphasizing the importance of co-viewing and interaction. Studies by Christakis et al. (2018) show potential negative effects of unsupervised and passive screen exposure on attention span, language development, and sleep quality. This growing body of research highlights the dual nature of digital engagement it can be both enriching and detrimental, depending on how it is structured and contextualized.

2.2 Reconciling Play-Based Pedagogy and Digital Engagement

An emerging area of interest lies in blending digital tools with play-based methods. Hirsh-Pasek et al. (2020) argue for "playful learning" through digital media an approach where educational apps and digital games are designed to promote active, engaged, meaningful, and socially interactive experiences. These principles align closely with traditional PBL but require thoughtful integration to avoid replacing authentic play with screen-centered activity. A study by Zosh et al. (2021) emphasized that children benefit most from digital learning when it complements their natural play behaviors. For example, augmented reality (AR) applications that require children to interact physically and socially with peers or caregivers can support the goals of PBL. In contrast, passive screen consumption (e.g., watching videos without interaction) has limited developmental value.These advances, there remains a significant gap in understanding how digital play can be structured to align with developmental needs. Many digital tools are developed without input from educators or developmental psychologists, leading to inconsistencies in quality and pedagogical value.

2.3 Parents' and Educators' Perceptions of Screen Time

A substantial body of research focuses on stakeholders' perceptions of screen time. Edwards et al. (2018) found that while parents often view digital tools as educational, they also express concerns about overuse and behavioral effects. Teachers, on the other hand, are sometimes hesitant to adopt digital resources due to lack of training, curriculum integration challenges, or concerns about screen dependency (Plowman et al., 2012). Nikolopoulou and Gialamas (2019) explored pre-service teachers' beliefs about technology integration in play-based settings and found a need for clearer guidelines and professional development. This aligns with research by Lynch and Redpath (2014), who argued that early years teachers require structured frameworks to evaluate and implement digital play meaningfully.

2.4 **Theoretical Framework**

The theoretical grounding for this research lies in a combination of Vygotsky's sociocultural theory and the "playful learning" framework developed by Hirsh-Pasek et al. (2020). Vygotsky (1978) emphasized the role of social interaction and scaffolding in learning, suggesting that digital tools, if used interactively and collaboratively, can support development. The playful learning framework adds specificity, advocating for learning environments that are active (not passive), engaging (not distracting), meaningful (linked to prior knowledge), socially interactive (not isolating), and iterative (allowing exploration and correction). These theoretical models help in understanding how screen-based play can meet developmental criteria when intentionally designed. The choice of this framework is grounded in its compatibility with both traditional play-based learning and modern technological affordances. Alternative theories such as behaviorism or purely cognitive load theory were considered but found less relevant due to their limited emphasis on interaction and holistic development

There is a growing body of literature on digital learning and play-based education, several critical gaps remain. First, few studies offer comprehensive models that integrate digital tools into structured play-based curricula. Most research tends to treat digital play and traditional play as separate, rather than examining how they can complement each other. Second, empirical studies on how children perceive and engage with digital play in real-time classroom environments are limited. Another gap lies in the lack of longitudinal studies examining the long-term effects of digital play on social, emotional, and cognitive development. While immediate outcomes (e.g., vocabulary gain, engagement levels) have been explored, sustained developmental trajectories remain under-researched. Moreover, cultural differences in digital access and parenting styles are rarely addressed in global studies, leading to a Western-centric view of digital learning.

This study attempts to address some of these gaps by focusing on real-world perceptions of educators and parents, investigating how digital play is being implemented in practice, and evaluating whether current tools align with the foundational goals of play-based learning.

The current research contributes to existing knowledge by exploring a balanced perspective on the role of digital screen time within play-based frameworks. It does not advocate for or against screen use but instead seeks to understand how digital tools can be designed and implemented to support children's holistic development. By gathering qualitative data from educators and parents, the study captures nuanced understandings that are often overlooked in quantitative research. This study aligns with policy-level interests, especially in light of revised early childhood education guidelines worldwide that now include technology use. By offering evidence-based recommendations for integrating digital tools into early learning in a developmentally appropriate way, this research can inform teacher training, curriculum design, and parental decision-making. The reviewed literature paints a complex picture of early childhood education in the digital age. While traditional play-based learning remains foundational, the rise of digital tools introduces new challenges and opportunities. Research supports the potential of well-designed digital play to enhance learning, but also warns of risks associated with passive and excessive screen exposure. There is a clear need for more nuanced, context-specific research that moves beyond binary arguments of "screens are good" or "screens are bad." This study, grounded in sociocultural and playful learning theories, seeks to bridge this

gap by exploring how technology can support not replace authentic play experiences. In doing so, it aims to contribute meaningful insights to the evolving field of early childhood education.

3. Research Methodology

This section describes the research design, participants, data collection procedures, and data analysis methods used to explore how play-based learning can be effectively integrated with digital screen time in early childhood education. The methodology was designed to address the research objectives and questions by focusing on the lived experiences and perspectives of those directly involved in young children's learning and development.

3.Research Methodology

3.1 Research Design

A qualitative research design was employed to gain deep insights into the perceptions and practices of early childhood educators and parents. This approach was chosen because the research focused on understanding complex, contextual, and subjective experiences related to screen time and play-based learning phenomena that cannot be easily measured using quantitative methods (Creswell & Poth, 2018). An interpretive phenomenological approach (IPA) guided the study, allowing for a rich exploration of participants' perspectives, meanings, and practices. IPA is particularly useful in educational research when seeking to understand how people make sense of their experiences (Smith, Flowers, & Larkin, 2009). The design allowed the researcher to engage with participants' voices in order to understand how digital tools are impacting the natural, development-focused learning of young children.

3.2 Population and Sampling

The population for this study consisted of early childhood educators and parents of children aged 3 to 7 years residing in Narowal, Pakistan. A purposive sampling technique was used to identify participants who had direct involvement with early childhood education and the use of digital devices or apps for learning and play. The final sample size included 20 participants, with 10 being early childhood educators and 10 being parents. These participants were selected based on their experience with either teaching young children in formal early years settings or raising children within the 3–7 age range who engage with screen-based learning or play. The sample size was considered sufficient for the purpose of thematic saturation in qualitative studies (Guest, Bunce, & Johnson, 2006).

3.3 Data Collection Procedures

Data were collected through semi-structured interviews, which provided flexibility for participants to express their views in detail while allowing the researcher to probe for deeper understanding. Interviews were conducted face-to-face where possible, and via phone or Zoom when necessary, to accommodate participants' preferences. Each interview lasted approximately 30–45 minutes and was audio-recorded (with consent) for transcription and analysis. All interviews were conducted in Urdu or English, based on participants' language preferences.

3.4 Data Analysis

The collected data were analyzed using thematic analysis, as outlined by Braun and Clarke (2006). This method allowed the researcher to identify, analyze, and report recurring patterns (themes) within the data. The process involved six phases: familiarization with data, generating initial

codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Transcripts were read multiple times to identify codes and themes related to how digital tools affect play-based learning and developmental needs. Researcher manually thematic analysis was used to assist in organizing and coding the data systematically.

3.5 Research Instruments

The primary data collection instrument was a semi-structured interview guide designed by the researcher, based on the literature and the study's objectives. It was peer-reviewed by two experts in early childhood education for content validity. The instrument was pilot-tested with two participants to ensure clarity, and slight modifications were made before full-scale data collection

3.6 Ethical Considerations

Ethical approval was obtained from the relevant academic review board before data collection. All participants were informed about the purpose of the research and provided informed consent prior to participation. Confidentiality and anonymity were maintained throughout the research process. Participants had the right to withdraw from the study at any point without any consequences.

4. Data Analysis and Findings

This analysis is developed from responses collected from 20 participants (10 early childhood educators and 10 parents) in Narowal, Pakistan, using a thematic analysis approach. The data was transcribed, coded, and categorized into key themes and sub-themes. The quotations are included to support each theme, highlighting the participants' lived experiences and reflections.

Theme 1: Purposeful Integration of Digital Tools

Sub-theme 1.1: Digital Media as a Tool for Creativity and Exploration

Participants widely believed that screen time can support developmental goals when used intentionally and not passively.

"I let my child play puzzle-solving games and coloring apps. These activities actually helped in improving his thinking and color recognition skills." (Parent 3)

"We use digital storytelling apps in the classroom. When used for short durations, they spark children's curiosity and vocabulary." (Educator 2)

Educators emphasized that digital play should complement physical play rather than replace it. They considered digital tools useful for visual learning, especially in under-resourced contexts.

Theme 2: Balanced Screen Time Encourages Cognitive and Social Growth

Sub-theme 2.1: Time Management and Active Engagement

The majority of educators and parents agreed that screen time aligned with interactive, play-based tasks fosters cognitive engagement.

"I only allow screen time if it is interactive like educational games that require thinking or decision-making. Passive video watching is not allowed for long." (Parent 7)

"We use tablets for memory games and group-based learning. Children collaborate while using the apps, which surprisingly promotes teamwork." (Educator 6)

Several respondents linked structured digital activities with problem-solving, memory skills, and social learning, particularly when the digital tool involved collaboration.

Theme 3: Developmentally Appropriate Content and Supervision

Sub-theme 3.1: Need for Age-Relevant and Culturally Sensitive Content

Participants repeatedly stressed that content must be age-appropriate and aligned with children's emotional and intellectual development.

"It's not just about screen time it's about what they watch. Local language cartoons and stories help children relate better." (Parent 5)

"We filter apps based on age levels. Some apps are marketed for learning but are too complex or irrelevant for preschoolers." (Educator 8)

This aligns with Vygotsky's theory of scaffolding, where learners benefit most from digital content that matches their developmental zone.

Theme 4: Parental and Teacher Mediation is Crucial

Sub-theme 4.1: Guided Use Enhances Learning Outcomes

Both parents and teachers viewed adult mediation as essential for aligning screen time with learning goals.

"We don't just give tablets. We sit with them, ask questions, and talk about what they're doing on-screen." (Parent 2)

"Children can lose focus easily. We observe and intervene when needed sometimes guiding them or asking questions to stimulate thinking." (Educator 1)

This feedback reflects Bandura's Social Learning Theory, highlighting how guided interaction enhances imitation and learning.

Theme 5: Challenges and Cautions

Sub-theme 5.1: Risk of Overuse and Behavioral Issues

The benefits, respondents highlighted concerns over excessive screen time, emphasizing a need for limits.

"My son becomes irritable if screen time isn't controlled. We noticed that long usage leads to less physical activity." (Parent 6)

"Some children become too dependent on digital play and struggle with real-world interaction." (Educator 4)

These insights underscore the dual-edged nature of digital tools useful when moderated, but potentially harmful in excess.

Research Question 2: What do teachers and parents think about the advantages and disadvantages of using digital technology for play and learning in young children?

Theme 1: Perceived Educational Benefits of Digital Tools

Sub-theme 1.1: Access to Interactive Learning

Many participants believed that digital technology helps children access diverse and interactive educational resources that traditional methods may not offer.

"My child learns colors, numbers, and even English rhymes quickly through educational apps. It keeps her engaged." (Parent 03)

"Digital games that are educational can actually reinforce classroom concepts, especially for visual learners." (Teacher 06)

Sub-theme 1.2: Improved Engagement and Motivation

Teachers and parents agreed that children show greater enthusiasm and attention when learning through digital devices.

"Sometimes, I notice more participation in class when I use animated storytelling apps compared to physical books." (Teacher 04)

"The sounds, colors, and movement keep my child interested for longer periods. It's more engaging than worksheets." (Parent 09)

Theme 2: Concerns About Overuse and Dependency

Sub-theme 2.1: Risk of Addiction and Reduced Physical Activity

Many participants expressed concern over the potential for addiction and reduced physical engagement.

"Children become so involved with the screen that they don't want to go outside and play anymore." (Parent 06)

"If we don't monitor screen time, it can become addictive. I've seen children throw tantrums when asked to switch off." (Teacher 08)

Sub-theme 2.2: Impact on Social and Emotional Development

Both parents and teachers noticed that excessive screen time could hinder face-to-face interaction and emotional expression.

"When children are always on tablets, they interact less with siblings and friends." (Parent 01)

"They often struggle with turn-taking and peer communication when they rely too much on digital games." (Teacher 02)

Theme 3: Role of Adult Mediation and Guided Use

Sub-theme 3.1: Need for Supervised Screen Time

Both groups emphasized that adult supervision can mitigate risks and ensure that screen time is beneficial.

"Screen time is not harmful in itself it's the lack of adult control that creates problems." (Teacher 09)

"We use digital content together. I ask my son questions while watching educational videos." (Parent 07)

Sub-theme 3.2: Balanced Integration of Digital and Traditional Play

Participants supported a hybrid model that combines digital learning with traditional, physical, and imaginative play.

"We need to balance both use technology where it helps but also keep traditional play alive." (Teacher 01)

"My daughter uses the tablet for 30 minutes, then I encourage her to draw or play outside." (Parent 04)

The analysis revealed a nuanced understanding among both educators and parents. While acknowledging the educational value of digital tools, they expressed concerns over unregulated use. Participants emphasized the importance of balance, supervised use, and integration with physical play to ensure holistic development. These insights contribute to the larger goal of reconciling screen time with the principles of play-based learning and developmental needs, supporting the research objectives and theoretical framework.

5. Discussion

The integration of digital technology in early childhood education has brought about significant shifts in how learning and play are approached. In this study, parents and teachers in Narowal, Pakistan, provided deep insights into the advantages and disadvantages of digital tools in early learning settings. The findings confirm that digital tools can be both educationally beneficial and developmentally concerning—depending largely on the context, content, and supervision under which they are used. These perceptions closely reflect the principles of the constructivist learning theory, which emphasizes active engagement, social interaction, and learning through experience.

5.1 **Digital Tools as Catalysts for Interactive and Engaging Learning**

One of the central findings from the data was the recognition of digital tools as engaging and interactive resources that can enhance early learning. Parents and teachers alike identified apps, digital games, and storytelling tools as effective methods to teach foundational skills, including language, numbers, and colors. This aligns with the constructivist perspective, which encourages hands-on, meaningful learning experiences. For instance, one parent (Parent 03) shared:

"My child learns colors, numbers, and even English rhymes quickly through educational apps. It keeps her engaged."

This indicates that for many families, digital tools have filled a crucial gap in delivering visually stimulating and self-paced content, especially when traditional teaching methods fall short. Teachers echoed similar sentiments, noting that students respond positively to digital learning resources.

"Digital games that are educational can actually reinforce classroom concepts, especially for visual learners." (Teacher 06)

These findings suggest that when used appropriately, digital tools serve not merely as passive entertainment but as interactive learning aids, promoting cognitive development and active exploration both pillars of play-based learning as defined by pedagogical literature (Hirsh-Pasek et al., 2022).

5.2 **Increased Motivation and Attention Span through Digital Content**

Another common observation was that digital content helps maintain children's attention, often longer than traditional methods do. The animation, sound, and interactive design of apps stimulate curiosity and make learning feel more like play, a concept closely related to developmentally appropriate practices. One teacher (Teacher 04) noted:

"Sometimes, I notice more participation in class when I use animated storytelling apps compared to physical books."

From a constructivist standpoint, this aligns with the belief that learners actively construct knowledge when they are motivated and engaged, especially in early childhood. The gamified structure of learning apps, with rewards and levels, adds a layer of intrinsic motivation, which many parents and teachers believe supports early academic skills. These observations are also supported by recent research that identifies digital technologies as helpful tools for fostering intrinsic motivation in young learners (Lytle et al., 2023).

5.3 Concerns about Overuse and Dependency

These benefits, both groups parents and teachers were highly concerned about the overuse of digital devices, particularly in relation to screen addiction, reduction in physical activity, and emotional detachment. This issue was among the most repeated concerns throughout the interviews and reflects an essential debate in contemporary early education. A parent (Parent 06) mentioned:

"Children become so involved with the screen that they don't want to go outside and play anymore."

This sentiment indicates a disconnect from physical play, which is crucial for motor skills and social development in early childhood. According to constructivist theory, children need real-world interaction, manipulation of physical materials, and social engagement to construct knowledge effectively (Piaget, 1952; Vygotsky, 1978). Replacing these experiences with screen-based activities could hinder a child's sensorimotor development and limit opportunities for social negotiation and imaginative play. Teachers shared similar concerns, particularly about the behavioral impacts of extended screen time.

"If we don't monitor screen time, it can become addictive. I've seen children throw tantrums when asked to switch off." (Teacher 08)

This reflects not only the risk of emotional dependency but also how unguided use of digital tools can contribute to behavioral challenges. The loss of self-regulation and increased reliance on screens for entertainment may lead to difficulties in classroom management and group interactions.

5.4 **Impact on Social and Emotional Learning**

Recurring theme was that excessive screen time negatively affects children's social and emotional development. Participants highlighted a growing trend of children struggling with interpersonal skills, reduced communication, and emotional expression. One parent (Parent 01) stated:

"When children are always on tablets, they interact less with siblings and friends."

This observation aligns with findings in global research which indicate that digital engagement, if not carefully balanced, can disrupt the natural rhythm of social play, which is critical in early childhood. Constructivist theorists, particularly Vygotsky, have emphasized the importance of social context in cognitive development. Children learn not only through individual exploration but also by interacting with peers and adults in real-world settings. A teacher (Teacher 02) added:

"They often struggle with turn-taking and peer communication when they rely too much on digital games."

This issue raises concerns about the erosion of foundational social-emotional skills, which are vital for success in school and life. While digital tools may be valuable for certain types of learning, they cannot substitute the human interaction that is at the heart of early developmental growth.

5.5 Role of Supervision and Balanced Use

A critical point raised by participants was the role of adult guidance and moderation in determining whether digital tools are used effectively or harmfully. Both parents and teachers

stressed the importance of supervised screen time, with co-viewing, interaction, and content selection being key factors in ensuring positive outcomes.

"Screen time is not harmful in itself it's the lack of adult control that creates problems." (Teacher 09)

From a constructivist lens, this finding reinforces the concept of scaffolding, where adults help structure learning experiences by being active participants in the child's activity. This may involve asking reflective questions, pausing to explain concepts, or drawing links to real-world experiences. Similarly, parents shared how they try to co-use digital media:

"We use digital content together. I ask my son questions while watching educational videos." (Parent 07)

This co-engagement helps transform passive screen time into a socially mediated learning experience, thereby maximizing cognitive and language development. Research confirms that co-engagement with digital media enhances learning outcomes and emotional bonding (Takeuchi & Stevens, 2018).

5.6 Need for a Balanced Digital-Traditional Learning Model

Many participants advocated for a hybrid approach, combining the benefits of digital tools with traditional play and learning experiences. This balanced strategy reflects a mature understanding of the digital age's demands while remaining grounded in developmental psychology.

"We need to balance both use technology where it helps but also keep traditional play alive." (Teacher 01)

"My daughter uses the tablet for 30 minutes, then I encourage her to draw or play outside." (Parent 04)

Such approaches are consistent with developmentally appropriate practices (DAP) and are supported by education experts worldwide. The balance ensures that while children are not left behind in digital literacy, their physical, social, and emotional needs are also met. This hybrid model also supports the constructivist goal of meaningful and contextual learning, giving children both digital and real-life tools to construct understanding. The perspectives shared by teachers and parents reveal a dual narrative: digital technology in early childhood education is seen as both a resource and a risk. When used intentionally, with proper guidance and within a structured timeframe, it serves as an effective tool for enhancing learning. However, when unsupervised and overused, it may interfere with vital areas of development such as physical activity, social skills, and emotional regulation. The findings reinforce the importance of adult-mediated, developmentally appropriate, and context-sensitive integration of technology into young children's lives. These insights offer practical guidance for educators, curriculum developers, and parents in designing play-based, balanced, and constructivist-aligned learning environments in a digital era.

5.7 Conclusion

This study explored the intersection of digital screen time and play-based learning in early childhood education, focusing on how digital technology can be aligned with the developmental goals of young learners. Through a qualitative approach involving semi-structured interviews with early childhood educators and parents from Narowal, Pakistan, the research aimed to understand perceptions, practices, and concerns related to digital play and its developmental

implications. Grounded in Piaget's Cognitive Development Theory and Vygotsky's Sociocultural Theory, the study provided a theoretical lens to critically analyze how children's cognitive, social, and emotional growth interacts with digital tools during play.

The findings revealed a complex but insightful narrative. While screen time is often seen in negative light, especially in early childhood discourse, this research has shown that digital technology, when used appropriately and in moderation, can serve as a valuable tool to support and even enhance developmental outcomes. Participants consistently emphasized that not all screen time is equal. There is a significant distinction between passive screen consumption, such as watching cartoons, and active digital engagement, such as interactive learning games or creative applications that promote problem-solving, collaboration, and self-expression. As one teacher aptly noted, "Technology can be a window into creativity if used rightly it depends on how and why it's used." A major theme emerging from the data was the intentional integration of digital tools into learning environments. Educators stressed the need for age-appropriate content, time limitations, and adult supervision to ensure that screen-based learning complements traditional forms of play. These insights support the principles of Vygotsky's theory, which emphasizes the importance of scaffolding and guided interaction for optimal cognitive development. Technology, when paired with teacher mediation or parent involvement, can foster social learning and collaborative play, even within digital platforms.

However, concerns about excessive or unmonitored screen use were prominent. Parents especially voiced apprehensions about behavioral issues, diminished social interaction, and reduced physical activity. These concerns are consistent with existing research that links prolonged screen exposure with attention problems, delayed language development, and disrupted sleep patterns (Radesky, Schumacher, & Zuckerman, 2015; Gottschalk, 2019). The study's participants warned against allowing digital tools to replace physical, outdoor, and imaginative play, which are foundational to early childhood development. In Piagetian terms, the sensorimotor and preoperational stages require tactile, real-world experiences for cognitive structures to evolve effectively. Overreliance on screens may hinder such experiential learning. The study's unique contribution lies in its contextual relevance. Unlike most global studies that explore this issue in Western settings, this research brought forth perspectives from educators and families in a rural Pakistani district. It highlighted the socio-economic, cultural, and infrastructural variables that influence digital access, digital literacy, and parental attitudes. For instance, while some parents acknowledged the benefits of educational apps, others viewed technology as a threat to cultural and moral values, citing the risk of exposure to inappropriate content or dependency.

Another significant outcome was the identification of a digital divide not just in access to technology but in the understanding of its pedagogical use. Teachers with some form of digital training were more likely to advocate for blended learning models and could clearly distinguish between developmentally supportive and harmful screen use. On the other hand, parents often relied on intuition or anecdotal experiences, underscoring the need for awareness-building initiatives. The study's alignment with the research objectives and theoretical framework was evident in the data. It fulfilled its aim of identifying both the potential and limitations of digital play in supporting developmental goals. The data validated the theoretical proposition that

guided interaction and intentionality are critical when integrating new media into learning environments. It also reiterated that play whether digital or physical must serve the broader goals of development, including curiosity, imagination, language, motor skills, and emotional well-being.

The research suggests a balanced, informed approach to digital play in early childhood education. Instead of viewing screen time as inherently detrimental or beneficial, stakeholders must assess its quality, context, and purpose. For digital tools to become effective agents of learning, they must be developmentally appropriate, culturally relevant, and used under adult supervision. Schools and educators must be equipped with training and resources to blend traditional pedagogies with modern technologies, while parents must be educated about healthy screen habits and digital safety. This study underscores the pressing need for collaborative strategies involving educators, parents, policymakers, and technology designers. Moving forward, future research should explore longitudinal impacts of digital play, assess intervention programs, and investigate how culturally responsive digital content can be designed for diverse contexts like Pakistan. Only through such holistic efforts can we ensure that the digital age enriches rather than impedes early childhood development.

5.7 Recommendations

Based on the findings, analysis, and theoretical grounding of this study particularly in light of Piaget's Cognitive Development Theory and Vygotsky's Sociocultural Theory several important and practical recommendations are proposed for educators, parents, policymakers, and educational technology developers. These recommendations aim to optimize the use of digital screen time in early childhood education while ensuring the promotion of holistic developmental goals.

1. Educational institutions should adopt a balanced approach that integrates digital tools with physical, imaginative, and social play. Play-based learning should not be replaced by digital content; rather, technology should be used to enhance and support hands-on, child-initiated activities. For example, interactive storybooks or problem-solving games can complement storytelling sessions or collaborative learning projects in the classroom.
2. Developers of digital educational tools must ensure that applications and programs designed for young children align with their cognitive, emotional, and social development stages. Content should be age-appropriate, linguistically suitable, and culturally respectful to promote inclusive learning environments. This is especially relevant for non-Western contexts such as Pakistan, where local language and cultural values must be preserved in digital formats.
3. Professional development programs for early childhood educators must include training in digital literacy and the pedagogical use of technology. Teachers need the skills to critically evaluate digital tools, integrate them into play-based learning, and guide children's interactions with technology in a developmentally appropriate manner. Training should also include strategies for managing screen time in classrooms and promoting offline activities.
4. As children are increasingly exposed to digital platforms, basic concepts of digital safety, responsibility, and respectful online behavior should be introduced at an early age.

Simple lessons on asking permission before using devices, avoiding unfamiliar content, and taking breaks can help inculcate lifelong digital citizenship values.

5. Policymakers and academic institutions should support longitudinal studies that investigate the long-term developmental outcomes of digital play in early childhood. Such research should explore cognitive, social, emotional, and physical impacts, particularly in underrepresented and rural contexts. Evidence-based findings can guide future curriculum design and educational policies.
6. Developers and educators should incorporate physical activity into digital learning experiences through interactive technologies such as motion-based games or kinesthetic learning apps. This helps counteract the sedentary nature of screen use and aligns with early childhood needs for gross motor development.
7. There is a strong need for education ministries and curriculum development bodies to formulate clear, research-informed national guidelines on the use of digital media in early childhood education. These should address screen time duration, content quality, integration methods, and safety protocols. Such policies will help standardize practices across public and private educational setting

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