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## Excessive Screen Time and Language Development Among School-Aged Children in Emerging Digital Societies

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### Abstract

*The rapid expansion of digital technologies has transformed the social and educational environments in which children develop. In contemporary societies, digital devices such as smartphones, tablets, televisions, and computers have become integral components of children's daily lives. While digital technologies offer opportunities for learning and information access, concerns have been raised regarding the potential developmental consequences of prolonged exposure to screen-based media. This study examines the relationship between excessive screen time and language development among school-aged children in emerging digital societies. The study adopts a descriptive survey design and relies on teacher observations and parental reports to assess children's language outcomes, including vocabulary acquisition, reading fluency, and expressive communication skills. Findings indicate that prolonged exposure to screen-based media is associated with lower language development outcomes among children who engage extensively with digital devices. The study concludes that while technology can support learning when used appropriately, excessive screen exposure may limit opportunities for verbal interaction and language practice, which are necessary for optimal cognitive development. The study recommends balanced digital engagement, parental supervision, and increased emphasis on literacy-based activities to enhance children's language development.*

**Keywords:** Screen time; Language development; Cognitive development; Literacy skills; Children; Digital media.

### INTRODUCTION

Digital technology has become an integral component of modern childhood. Over the past two decades, the proliferation of internet-enabled devices has dramatically altered how children access information, communicate with others, and spend their leisure time. In many households, children now interact with digital devices from an early age, often spending considerable time engaging with television programs, video games, social media platforms, and educational applications. According to a United Nations International Children's Emergency Fund (UNICEF) report, children and adolescents under 18 account for an estimated one in three internet users worldwide (UNICEF, 2027).

The increasing accessibility of digital technology has generated both optimism and concern among educators, psychologists, and child development experts (Khatun and Yeasmin, 2026; Olomu and Ariyibi (2026). On the one hand, digital media provide opportunities for interactive learning,

access to educational resources, and global communication (Mollah, 2026). On the other hand, excessive engagement with screen-based media has raised questions about its implications for children's cognitive and linguistic development (Liu *et al.*, 2025; Lowry, 2023).

Language development is a fundamental aspect of childhood growth. It enables children to communicate effectively, understand complex ideas, and participate in academic and social interactions. According to developmental psychologists, language acquisition is closely linked to social interaction, environmental stimulation, and exposure to meaningful communication (Vygotsky, 1978).

However, when children spend prolonged periods interacting with digital screens rather than engaging in verbal communication with parents, teachers, and peers, opportunities for language practice may become limited. Scholars have therefore expressed concerns that excessive screen time may interfere with the natural processes through

which children acquire vocabulary, grammar, and communication skills (Madigan *et al.*, 2020).

In emerging digital societies such as Nigeria and other developing countries, the rapid spread of smartphones and affordable internet access has intensified children's exposure to digital media. While these technologies offer valuable learning opportunities, there is limited empirical research examining how excessive screen exposure affects children's language development within these contexts.

This study, therefore, investigates the relationship between excessive screen time and language development among school-aged children in emerging digital societies.

### **Purpose of The Study**

The primary purpose of this study is to examine the impact of excessive screen time on language development among school-aged children.

Specifically, the study aims to:

1. Examine the relationship between screen exposure and vocabulary development among children.
2. Investigate the influence of screen time on children's reading fluency.
3. Determine whether excessive screen engagement affects children's expressive communication skills.

### **Research Question**

The study seeks to answer the following research question:

*"How does excessive screen time influence language development among school-aged children?"*

### **Significance of The Study**

The findings of this study will contribute to understanding the relationship between digital media exposure and children's cognitive development.

#### *Parents and Caregivers*

Parents will gain insight into how children's digital habits may influence language acquisition and communication abilities. This knowledge will assist parents in creating balanced media usage patterns within the home environment.

#### *Educators*

Teachers will benefit from a clearer understanding of how students' digital lifestyles may affect their literacy development and classroom participation.

#### *Educational Policymakers*

Educational authorities may use the findings of this study to design policies and guidelines regulating children's screen exposure and promoting literacy development.

#### *Academic Community*

The study contributes to the growing body of research examining the effects of digital technology on childhood development, particularly in developing countries.

## **CONCEPTUAL CLARIFICATIONS**

### **Screen Time**

Screen time refers to the amount of time spent using devices such as televisions, smartphones, tablets, computers, and gaming consoles.

### **Excessive Screen Time**

Excessive screen time refers to screen usage that exceeds recommended limits for children and interferes with developmental activities such as reading, conversation, and play.

### **Language Development**

Language development refers to the process through which children acquire vocabulary, grammatical structures, and communication skills necessary for understanding and expressing ideas effectively.

## **THEORETICAL FRAMEWORK**

This study is anchored on two major theories of cognitive and language development.

### **Sociocultural Theory**

The Sociocultural Theory proposed by Vygotsky (1978) emphasizes that cognitive development occurs through social interaction and communication within a cultural environment. According to this theory, children acquire language primarily through interactions with caregivers and peers who provide guidance and feedback.

From this perspective, language learning thrives in environments characterized by conversation, storytelling, and shared activities. When screen-based media replace these interactions, opportunities for language development may be reduced.

### **Cognitive Development Theory**

The Cognitive Development Theory proposed by Jean Piaget (1962) suggests that children's cognitive abilities develop progressively through active engagement with their environment.

Piaget (1962) argued that learning occurs when children interact with their surroundings and construct knowledge through experience. Excessive passive screen consumption may therefore limit children's opportunities for exploratory learning and interactive communication.

## **LITERATURE REVIEW**

A growing body of research has examined the relationship between digital media exposure and children's language development.

Hart and Risley (1995) conducted one of the most influential studies on language development, demonstrating that children exposed to richer verbal environments acquire larger vocabularies and stronger literacy skills than children with limited language exposure.

More recent studies have investigated the role of digital technology in shaping children's learning environments. Hutton *et al.* (2020) reported that increased screen exposure among preschool children was associated with reduced

**Table 1:** Average daily screen time and language development scores.

Average Screen Time (Hours per Day)	Mean Vocabulary Score (%)	Reading Fluency Score (%)	Communication Ability Score (%)
1 hour	90	88	89
2 hours	86	84	85
3 hours	81	79	78
4 hours	75	73	72
5 hours	69	67	66
6 hours	61	59	58

integrity in brain pathways responsible for language and literacy development.

Similarly, Madigan *et al.* (2020) found that children who spent longer hours interacting with digital devices exhibited slower development of expressive language skills.

Within African contexts, Adedapo (2017) observed that Nigerian primary school pupils who spent extended hours watching television demonstrated weaker reading comprehension skills compared with pupils who engaged more frequently in reading activities.

These studies collectively suggest that while digital technology may support learning when used in moderation, excessive screen engagement may displace activities such as reading, storytelling, and conversation that are essential for language development.

**METHODOLOGY**

The study adopted a descriptive survey research design.

**Population**

The population consisted of primary school pupils aged between 6 and 12 years in selected urban schools.

**Sample**

A sample of 200 pupils was selected using stratified sampling techniques.

**Data Collection**

Data were collected through:

- Parent questionnaires
- Teacher observation reports
- Language development assessment records

**Data Analysis**

Data was analyzed using descriptive statistics to examine patterns in screen exposure and language performance.

**RESULTS AND FINDINGS**

This section presents the empirical findings of the study on the relationship between excessive screen time and language development among school-aged children.

Data collected from parental questionnaires and teacher assessments were analyzed to determine the patterns of screen exposure and their influence on children's vocabulary

**Table 2:** Frequency of Verbal Interaction and Language Performance.

Level of Parent-Child Conversation	Vocabulary Score (%)	Reading Fluency (%)
High Interaction	92	90
Moderate Interaction	84	82
Low Interaction	70	68

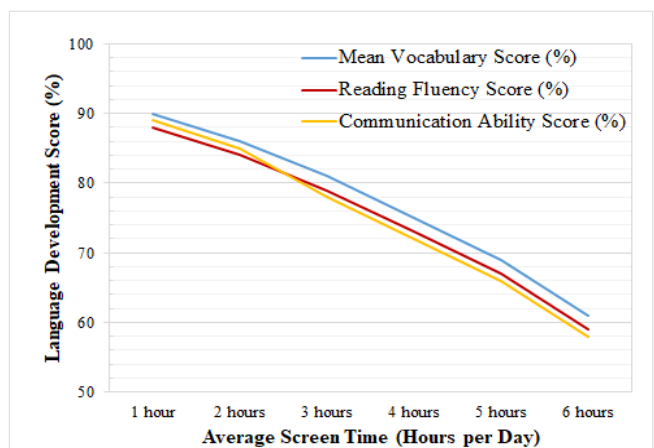
acquisition, reading fluency, and expressive communication skills (Table 1).

The data reveal a consistent decline in language development indicators as screen exposure increases. Pupils who spent one hour daily on screens recorded the highest language development scores, while those exposed to six hours daily recorded the lowest scores.

Table 2 indicates that children who experienced frequent conversational engagement with parents performed significantly better in vocabulary acquisition and reading fluency than those who had limited interaction.

**Chart Interpretation**

When represented graphically, the chart showed a negative correlation between screen exposure and language development (Fig. 1). As screen time increases along the horizontal axis, language development scores decline along the vertical axis. This trend has also been reported by Bhutani *et al.* (2024), Kaushik *et al.*, (2025), Korres *et al.* (2024) and Zhang (2026).



**Fig. 1:** Average daily screen time v. language development.

This trend suggests that excessive digital engagement may reduce children's opportunities to practice verbal communication and language skills.

## DISCUSSION OF FINDINGS

The findings of this study provide important insights into how excessive screen exposure influences children's language development in emerging digital societies.

The results indicate a clear inverse relationship between prolonged screen engagement and language development outcomes. Children who spent more hours interacting with digital devices demonstrated lower vocabulary scores, reduced reading fluency, and weaker expressive communication skills compared with those who engaged in moderate or limited screen use.

One possible explanation for this finding is that excessive screen exposure may replace activities that traditionally support language acquisition, such as storytelling, reading, and conversation with caregivers. Language development is strongly dependent on interactive communication, where children receive feedback, clarification, and reinforcement during verbal exchanges.

According to Vygotsky (1978), language acquisition occurs primarily through social interaction within a cultural context. When children interact with parents, teachers, and peers, they receive linguistic input that helps them expand their vocabulary and improve their communication skills. Excessive screen engagement may therefore limit opportunities for these meaningful interactions.

Similarly, the results align with the cognitive development perspective advanced by Piaget (1962), who argued that children learn most effectively through active engagement with their environment. Passive consumption of digital media may reduce opportunities for exploratory communication and interactive learning experiences that stimulate cognitive and linguistic development.

The findings also corroborate the work of Madigan *et al.* (2020), who reported that increased screen exposure among children was associated with slower expressive language development. Their study suggested that children who spend extensive time interacting with screens may have fewer opportunities to practice conversational skills necessary for language growth.

Furthermore, the findings are consistent with the study conducted by Hutton *et al.* (2020), which found that prolonged screen exposure among young children was associated with structural differences in brain pathways responsible for language and literacy development. These neurological findings suggest that excessive digital engagement may influence the cognitive processes involved in language acquisition.

Within the African context, similar patterns have been reported. Adedapo (2017) observed that Nigerian primary school pupils who spent extended periods watching television or playing digital games demonstrated weaker reading comprehension and lower participation in classroom discussions. This observation reinforces the argument that

excessive screen exposure may interfere with literacy development.

Another important finding from this study relates to the role of parent-child interaction. The data indicate that children who experienced frequent conversational engagement with parents recorded significantly higher vocabulary and reading scores than those who had limited verbal interaction at home.

This finding supports the earlier work of Hart and Risley (1995), who demonstrated that children exposed to richer linguistic environments during childhood develop significantly larger vocabularies than those raised in less verbally interactive environments.

In practical terms, this suggests that the impact of screen exposure on language development may not depend solely on the amount of time spent on digital devices but also on the quality of interaction within the child's environment. When digital engagement replaces meaningful communication with caregivers and educators, language development may be adversely affected.

It is also important to note that the findings of this study do not suggest that digital technology is inherently harmful to children's learning. Rather, the results indicate that excessive and unregulated screen exposure may create developmental imbalances by reducing time spent on activities that stimulate language growth.

Moderate and supervised digital engagement, particularly when educational content is involved, may still provide valuable learning opportunities for children. Educational applications, interactive storytelling platforms, and digital reading tools can support literacy development when used appropriately.

However, when screen engagement becomes excessive and displaces reading, conversation, and creative play, the developmental benefits of these activities may be diminished.

## Implications of The Findings

The findings of this study have several important implications for families, schools, and policymakers.

First, parents and caregivers should recognize the importance of maintaining a balanced approach to children's digital media use. Encouraging activities such as reading, storytelling, and family conversations can help counterbalance the effects of digital exposure.

Second, educators should incorporate more interactive language activities in classroom settings to strengthen pupils' communication and literacy skills.

Third, policymakers and educational authorities should develop guidelines that promote responsible digital media use among children while encouraging literacy-based learning environments.

## CONCLUSION

This study provides empirical evidence that excessive screen time may influence language development among school-aged children in emerging digital societies. The findings demonstrate that prolonged digital engagement is associated

with lower vocabulary acquisition, reduced reading fluency, and weaker expressive communication skills.

The study, therefore, concludes that while digital technologies provide valuable learning opportunities, excessive screen exposure may limit the social and verbal interactions necessary for healthy language development.

Promoting balanced digital engagement combined with reading, storytelling, and interactive communication remains essential for supporting children's cognitive and linguistic growth.

### Professional Recommendations

1. Parents should regulate children's daily screen time.
2. Schools should strengthen reading and literacy programs.
3. Teachers should encourage interactive communication in classrooms.
4. Governments should develop awareness programs on responsible digital media use.
5. Educational technology developers should design interactive digital learning platforms that promote language development.

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The present research did not receive any financial support to conduct the research.

### Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/ or falsification, double publication and/or submission, and redundancy, have been completely observed by the authors.

### Life Science Reporting

No life science threat was practised in this research.

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