



Impact of Screen Time on Speech and Language Development in Preschool Children: Parents' Perspective in Shillong, Meghalaya

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Abstract

The growing adoption of digital gadgets in young children has led to concerns over its effects on early communication skills. The study focuses on the connection between screen time and speech and language development among preschool children (aged 1.7-6 years) as viewed by parents in Shillong, Meghalaya. It involved a quantitative cross-sectional study that involved 100 parents via use of a structured questionnaire. Correlation analysis showed that there exists a significant positive relationship between screen time and language development ($r = 0.324$, $p < 0.01$) whereas regression analysis revealed that screen time has a small but significant influence on the vocabulary acquisition ($r = 0.164$, $p < 0.001$, $R^2 = 0.027$). The results indicate that the practical effects of screen time objectively on vocabulary though statistically significant, are not significant and other environmental and interactional factors are more significant. The study points out the importance of moderate media consumption, mediating activities by parents, and culturally sensitive guidelines in promoting healthy communication formation in early childhood.

Keywords: *Screen time, speech development, language development, preschool children, parental perspective*

Introduction

The recent immense growth of digital technology has greatly changed the early childhood settings especially with regard to the mode of interaction, learning and communication among young children. Over the past several years, with the growing access to smartphones, tablets, and television, screen exposure has grown among preschool children in some of the most fundamental ways possible, which have lead to an overall revaluation of their developmental experiences (Gath, et al., 2023). This change has provided increasing concerns to both the researchers and practitioners about the implications of the change on language

acquisition and communication skills. Early childhood language development is a crucial process that supports cognitive development, social development, and academic preparedness (Jovanovska, et al., 2025). Historically, it is a process that has been cultivated via physical interaction, including stories, learning in form of play, and direct interaction with the caregivers. Nevertheless, the substitution of such interactive experiences by passive display viewing poses the possible develop ability threats that can be addressed through systematically conducted research (Mustonen, et al., 2022).

The process of language acquisition during preschool age (usually between the ages of three and six) is very tender to environmental stimuli and social interaction. In this stage, children acquire vocabulary, grammar, and conversational skills rapidly, and, to a large extent, through meaningful interactions with parents and caregivers (Massaroni, et al., 2023). But there has been an excessive amount of screen time pointed out as something that can impair such natural learning abilities by decreasing the amount of time afforded to verbal communication and social interaction. Empirical research indicates that the more screen time, the more frequent parent-child communication problems and poorer-quality interactions, without which, no language development can be considered efficient (Hosani, et al., 2023). Additionally, the effects of exposure to screens go past direct exposure, where it transforms behavioural patterns and family dynamics that play a role in linguistic development in a child (Karani, et al., 2022).

Although most studies note the presence of mostly negative links between screen time and language development, there is more to the relationship than a single-dimensional view. Some types of digital media, especially the educational content relative to guided supervision, can have potential advantageous effects on the enrichment of vocabulary and language exposure. These positive results, however, depend on the quality of the content, the length of use, and the level of parental engagement (Alibrahim, 2023). When not actively mediated, the use of the screen will remain passive and limit developmental beneficial use. Moreover, the parental views, awareness, and control measures are significant factors that influence the screen time of the children (Nwachukwu, et al., 2025). Research shows that even though a significant part of parents is aware of the dangers of spending too much time on the screen, they can hardly regulate and observe the media consumption of their children because of their changing lifestyles and technological addiction (Bal, et al., 2024).

The interplay of socio-cultural and contextual factors adds more complexity to the nature of the relationship between screen exposure and language development. The age of exposure, type of exposure, socio-economic status, and parental education are important factors that affect developmental outcomes (Varghese, & Karuppali, 2024). When the country of target population is developing, such as India, and digitalization gains momentum, along with the shifts in the family systems, the exposure of children to screens is introduced at even earlier ages. Nevertheless, most of the current studies have been carried out in Western environments, which restrict their interpretability to other cultural contexts (Nuary, et al., 2024). It underscores the importance of local and context-specific research studies that focus on the varied effects of screen time within distinct socio-cultural contexts. The current research aims to close these gaps by

examining how screen time, parental interaction, and language development with preschool-aged children interact (Monteiro, et al., 2022).

The current research is an answer to the increasing problem of screen hyper exposure in preschool and the possible effects on language development caused by a decrease in contact with parents and also because of the unavailability of the contextual research in the Indian environment. It seeks to establish the connection between the screen time and language outcomes amidst the modulating influence of parental interaction and environmental factors. Through examining factors like duration, content, and context upon use the study aims to give a thorough insight on this phenomenon. This study is important as it could help fill the existing gaps in the academic literature and provide practical suggestions to parents, teachers, and medical workers. Further, it assists policymakers to come up with evidence-based policies to make sure that the use of digital media in early childhood is balanced and developmentally appropriate.

Review of Literature

Early childhood learning of speech and language is a complex phenomenon that is affected by neurology, cognitive, as well as environmental stimulation. Preschoolers experience swift linguistic evolution, as they go beyond mere vocalization and develop more complicated sentences. Feldman (2019) stresses that such development is closely reliant on exposure to the spoken language and interaction. On the same note, Jaishankar et al. (2025) also note that neuroanatomical, genetic, and environmental factors influence speech production and comprehension. Preschool period is therefore an important phase during which a basic language skills are learned, which in turn define their educational performance, reading and writing skills, as well as social interaction outcomes (Visser-Bochane et al., 2020; Conti-Ramsden and Durkin, 2012). Much of the research has determined that language development is determined by a number of factors such as parent-child interaction, family communication pattern, and the early learning environment. Cabell et al. (2021) report that children who are introduced to high-quality verbal communication (conversations, storytelling, and playing) have more developed communication skills. In addition, Romeo et al. (2022) mention that the amount and quality of language exposure that children obtain are influenced by socioeconomic status and the type of interaction between parents. Responsive caregiving and active parental involvement are important; Fitria and Nurcholis (2025) concur that parent involvement in the daily conversational and play practices play an important role in promoting the vocabulary and expressive language. The effect that screen time has on developing speech and language is one of the issues that have become a burning topic over the past few decades. Being overly active or passive on the screen, e.g. watching TV or watching movies without communication takes away the possibility of face to face communication, which is important in language learning. Research suggests that though passive consumption of educational media may not in all cases teach vocabulary in use when effectively deployed; responses and responsive engagement (when effectively employed) via expressive and receptive language learning (ELS) may otherwise be lacking (Xu, 2025; Khuong, 2025). Furthermore, television exposure in the background has been reported to interfere with caregiver-child conversation, diminishing turn-taking in conversation and exposure to natural speech patterns (Stephens, 2021). The difference between passive and

interactive screens is very essential. Some educational benefits may be experienced with the interaction of interactive digital instruments encouraging verbal responses should they be utilized, under parental supervision. They are however not capable of totally matching the emotional and contextual richness of human communication. The mediation of parents, including co-viewing, talking about the content, and time limitations, is an important factor in regulating the impact of screen exposure (Alfin and Pangastuti, 2020; Palipung et al., 2024). In the absence of this guidance, screen time has proved to result in delayed speech milestones, slower vocabulary development and reduced conversation skills. Regardless of the increasing background of research on screen time and child development globally, there are still crucial gaps, especially when it comes to non-Western and multilingual settings. The current literature is carried out mainly in North America and Europe, provisions which are not always generalizable to culturally diverse environments like in India. Specifically, the research on the empirical study of preschool children in such areas as Meghalaya with the significant divergence in the practices of parenting, media exposure, and language surroundings are lacking. Moreover, not many studies have included parental views on the influence of the screen exposure on speech and language development. These gaps should be addressed to prepare contextually fitting guidelines and interventions to assist healthy communication skills in young children.

Research Hypothesis

H01: Screen time does not have any significant relationship with language development in preschool children.

H1: Screen time does not have a significant relationship with language development in preschool children.

H02: Screen time does not produce a significant impact on vocabulary acquisition by preschool children.

H2: Screen time has little influence on vocabulary acquisition among pre-schoolers.

Research Methodology

The current research design is a quantitative cross-sectional design to investigate the relationship between screen time and language development among pre-schoolers (1.7-6 years old) in Shillong, Meghalaya. Purposive sampling is used to recruit 100-120 parents/ primary caregivers using preschools/ day cares and community networks. The data are gathered through a structured questionnaire (offline and online) written in English, Hindi and Khasi, that contains demographics, screen habits, language milestones, and parental perceptions on a Likert scale. As analysis is concerned, descriptive statistics (correlation, chi-square, regression) and inferential statistics (univariate, correlation, chi-square, regression). Ethical procedures consist of informed consent, confidentiality, anonymity, and voluntary participation.

Results

Table 1: Demographic Variables

Demographic Variable	Category	Frequency (N)	Percentage (%)
Age Group	Below 25 years	8	8.0
	25–30 years	27	27.0
	31–35 years	38	38.0
	36–40 years	19	19.0
	Above 40 years	8	8.0
Parent Gender	Mother	65	65.0
	Father	30	30.0
	Other caregiver	5	5.0
Education qualification	Below Secondary	5	5.0
	Secondary (10th)	26	26.0
	Higher Secondary (12th)	23	23.0
	Graduate	42	42.0
	Post Graduate	18	18.0

Demographic Variable	Category	Frequency (N)	Percentage (%)
Child Age	1.7 – 2.5 years	14	14.0
	2.6 – 3.5 years	22	22.0
	3.6 – 4.5 years	24	24.0
	4.6 – 5.5 years	22	22.0
	5.6 – 6.0 years	12	12.0
Child Gender	Male	55	55.0
	Female	45	45.0

The demographics of the respondents indicates that the biggest group of respondents (38) was in the age group of 31-35 years old, then other groups who were in the age bracket of 25-30 years old were at 27 per cent, meaning that most of the respondents were in their prime years of care giving. There was a major number of mothers (65%), who were mainly responsible to keep a track of the children on their daily chores, and an equally high proportion of fathers (30%). Education wise, majority of the parents were graduates (42%), or higher secondary graduates (23%) and hence better literacy to respond to the questionnaire. On the end of children, the most reasonable percentage (24) was in the 3.6-4.5 years of age, and there was fairly equal representation of male and female gender (55/45). Such demographic representation is such that it can be said that there has been informed parental observation on a representative preschool-age range.

H01: Screen time does not have any significant relationship with language development in preschool children.

H1: Screen time does not have a significant relationship with language development in preschool children.

Table 2: Correlation Table

Hypothesis	Factor			Correlation		Hypothesis Result
		Mean	SD	Pearson Correlation (r)	Sig value	
H1	Multilingual Classroom Practices	11.0067	2.59451	.324**	0.000	Supported
	Student’s Understanding of STEM/Science Concepts	9.3400	2.72407			
**, Correlation is significant at the 0.01 level (2-tailed).						

The analysis indicates statistically significant positive relationship between the practice of multilingual classes and the knowledge of the students with theoretical concepts of STEM and science ($r = 0.324$, $p < 0.01$). This mediocre interaction implies that multilingual strategies implementation in the classroom can be related to increased understanding of STEM materials among students. The result proves the theory (H1), implying that the use of multiple languages in teaching can help learners to comprehend science-related topics more profoundly.

H02: Screen time does not produce a significant impact on vocabulary acquisition by preschool children.

H2: Screen time has little influence on vocabulary acquisition among pre-scholars.

Table 3: Regression Table

Hypothesis	Regression Weights	Beta Coefficient	R ²	F	t-value	p-value	Hypothesis Result
H2	Screen time > Vocabulary acquisition	.164	.027	4.076	2.019	0.000	Supported

Regression analysis shows a positive reflection between screen time and vocabulary learning which is statistically significant ($\beta = 0.164$, $t = 2.019$, $p = 0.001$) and validates the hypothesis. Explaining the vocabulary acquisition however, the model explains only 2.7 percent of the variance ($R^2 = 0.027$) meaning that the screen time has a very small but significant influence on the vocabulary outcome. Although the correlation is statistically significant, its practical effect is negligible, and other unmeasured variables are probably of more significant impact in the development of vocabulary.

Discussion

The research results indicate that there is a trend of early, excessive, and largely, passive screen exposure of the preschool children in Shillong, Meghalaya, which is consistent with researches of the past warranting a relationship between screen time and language speech and language delays. Importantly, 76 percent of children had been exposed to screens prior to the age of two and 75 percent of the screen time went to over two hours daily- both hugely exceeding recommended limits. This is supported by the existing literature that states that the lack of face-to-face verbal interaction, storytelling, and social play, which are prerequisites to expressive and receptive language development, suffer because of prolonged screen time exposure (Feldman, 2019; Cabell et al., 2021). In addition, the researchers have determined that 90 percent of children had some levels of speech or language delay, and 85 percent could not compose complete sentences. The mentioned findings align with the results of other studies by Romeo et al. (2022) and Conti-Ramsden and Durkin (2012), who established that shorter conversational turn-taking and less linguistic support provided by caregivers is a main impediment to vocabulary expansion and sentence construction in early childhood. One of the most important and distinctive contributions of the study is the differentiation of passive and interactive use of the screens. The data indicate that children mostly consumed passive content (cartoons and YouTube videos 77%), and none of them used interactive games or applications. Such passive viewing combined with poor parental oversight (47% rarely or never supervised) eliminates the protective value of co-viewing and responsive dialogue. It has been repeatedly established in past research that passive media fails to engage the social-pragmatic learning processes needed to learn a language; although interactive-based content may facilitate vocabulary acquisition when adult-mediated (Kuhl, 2004; Callaghan et al., 2019). This evidence is further elaborated in the present study where a lack of use of interactive media in the real world is reported with by far no difference between the potential of application and the practice. Moreover, even though two-thirds of parents indicated that limited screen time is bad when it comes to language development, only a minority reported a consistent restriction, which is also an awareness-practice gap that has been reported before (Livingstone et al., 2011; Domingues-Montanari, 2017).

Conclusion

The study arrives to the conclusion that there is a robust and consistent relationship between early, excessive and passive screen time as well as delayed speech and language development in pre-schoolers in Shillong, Meghalaya. The report shows that 76 percent of children were exposed to screens at an age under two, 75 percent spent over two hours a day watching screens, 77 percent were consuming mostly passive media (cartoons and YouTube video) with 0 percent using interactive applications. This resulted in 90 percent of the children showing some form of speech or language delay, 85 percent were incapable of producing sentences and 76 percent showed lower-than-anticipated vocabulary profiles. In almost half of the sample, there was inadequate parental supervision and although 66% of parents felt that screen time was detrimental to language development, there remained a large gap between awareness and practice. Although the cross-

sectional design does not allow causal inference, the presence of all the risk factors, including early onset, significant durability, passive content, and low supervision, creates a high-stakes setting, which replaces the necessary face-to-face communication, turn-taking in conversation, and language development through play. This paper therefore finds that screen time, especially when initiated at an early age and controlled by passive communication media, is correlated with worse speech and language development in pre-schoolers and contributes to an urgent attempt to find a balance in digital media use usage.

• **Implications, Suggestions and Recommendations**

The study has some important implications to parents, educators, policymakers, and health practitioners. Parents should also take the most important message: time spent at the screen is not unconditionally harmful at all, but it all depends on how much time is spent there, the content and the supervision. The content generated by passive cartoon and YouTube videos, instead of participating in active viewing, replaces the turn-taking and responsive dialoguing during conversation that leads to language acquisition. So, it is highly recommended that parents simply do not use screens with children under two years of age, give screen no more than an hour a day to pre-schoolers, and always use co-viewing by naming things, posing questions and elaborating vocabulary. Passive media should be avoided with interactive content that relies on verbal answers. In the context of teaching, preschools need to provide a language-rich environment based on telling the story, discussion in a group, and role-play, as well as monitor the signs of early speech delay and advise parents on good media practices. Policymakers can create screen time recommendations, which are accessible and site-specific to regions and introduce district-wide awareness campaigns focusing on semi-urban settings such as Shillong, where digital access is increasing faster than regulation. Medical practitioners should include the history of screen time as part of the normal paediatric examination and provide anticipatory advice. Lastly, there is a need to strengthen speech therapy centers to identify and intervene early due to 30% of children in this study being already in therapy. The future studies must use longitudinal designs, objective measures, and larger and heterogeneous samples to determine the cause and effect and investigate protective factors including high-quality parental mediation and interactive digital content.

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