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The Relationship Between Screen Time Usage and Language Development in Preschool Children at TK 'Aisyiyah Bustanul Athfal 7 Lawang, Malang Regency

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Abstrak

Perkembangan bahasa pada anak prasekolah berperan penting dalam proses tumbuh kembang dan dipengaruhi oleh berbagai faktor, salah satunya penggunaan *screen time*. Peningkatan penggunaan *screen time* pada anak prasekolah berpotensi berdampak pada kemampuan bahasa. Penelitian ini bertujuan untuk menganalisis hubungan antara penggunaan *screen time* dan perkembangan bahasa anak prasekolah usia 4–6 tahun di TK 'Aisyiyah Bustanul Athfal 7 Lawang, Kabupaten Malang. Penelitian menggunakan desain observasional analitik dengan pendekatan *cross sectional*. Sampel penelitian berjumlah 30 anak yang memenuhi kriteria inklusi dan ditentukan menggunakan teknik *purposive sampling*. Data *screen time* dikumpulkan melalui lembar observasi yang diisi oleh orang tua, sedangkan perkembangan bahasa diukur menggunakan *Preschool Language Scale–Fifth Edition* (PLS-5). Analisis data menggunakan uji korelasi *Spearman's rho*. Hasil penelitian menunjukkan sebagian besar anak (60%) memiliki penggunaan *screen time* lebih dari 120 menit per hari dan 53,3% memiliki perkembangan bahasa sesuai usia. Terdapat hubungan yang bermakna antara penggunaan screen time dan perkembangan bahasa anak ($p = 0{,}001$; $r = -0{,}764$). Disimpulkan bahwa semakin lama penggunaan *screen time*, semakin rendah

perkembangan bahasa anak prasekolah.

Kata Kunci: Language Development, Screen Time, Preschool Children, Preschool Language Scale-5

Abstract

Language development in preschool children plays an important role in the growth and developmental process and is influenced by various factors, one of which is screen time use. Increased screen time exposure among preschool children may potentially affect language abilities. This study aimed to analyze the relationship between screen time use and language development among preschool children aged 4–6 years at 'Aisyiyah Bustanul Athfal 7 Kindergarten, Lawang, Malang Regency. This study employed an analytic observational design with a cross-sectional approach. The sample consisted of 30 children who met the inclusion criteria and were selected using purposive sampling. Screen time data were collected using an observation sheet completed by parents, while language development was assessed using the Preschool Language Scale–Fifth Edition (PLS-5). Data were analyzed using Spearman's rho correlation test. The results showed that most children (60%) had screen time exposure of more than 120 minutes per day, and 53.3% demonstrated age-appropriate language development. There was a significant relationship between screen time use and language development ($p = 0.001$; $r = –0.764$). It can be concluded that longer screen time use is associated with lower language development in preschool children.

Keywords: *Perkembangan Bahasa, Screen Time, Anak Prasekolah, Preschool Language Scale*

INTRODUCTION

Language acquisition during early childhood establishes a vital foundation for subsequent communication, social interaction, and cognitive progression. The preschool years are marked by rapid development in both receptive and expressive language skills, making children exceptionally sensitive to environmental input. Contemporarily, the widespread availability of digital technology has integrated screen-based media into the daily routines of young children. While these tools can offer educational advantages when used judiciously, excessive screen exposure may restrict essential opportunities for interactive play and meaningful verbal engagement—activities crucial for optimal language growth.

A substantial body of research has explored the impact of screen time on language development, often highlighting the potential risks associated with prolonged use. Spending extended periods in passive screen engagement can diminish the frequency of verbal exchanges between children and their caregivers, potentially leading to slower development of both expressive and comprehension skills. This concern is supported by findings from Suminar (2021), as cited in Manfaatin et al. (2024), and Nazeera et al. (2022), which indicate a direct link between greater daily screen exposure and reduced language performance in preschoolers.

Despite existing evidence, the precise nature of the relationship between media consumption and language development remains a critical area for further investigation, particularly as digital devices become increasingly common in early educational environments. A clearer understanding of how screen exposure affects linguistic abilities is essential for empowering parents, educators, and healthcare professionals to make evidence-based decisions regarding media use guidelines. Accordingly, the current study was initiated to analyze the association between screen time and language development in children aged 4–6 years at 'Aisyiyah Bustanul Athfal 7 Lawang Kindergarten in Malang Regency.

METHOD

This investigation employed an analytical observational research design utilizing a cross-sectional approach to assess the connection between screen time exposure and language development in preschool-aged children. The study was conducted at the 'Aisyiyah Bustanul Athfal 7 Lawang Kindergarten, situated in Malang Regency.

The overall population consisted of 107 children enrolled at the institution. A sample of 30 participants was selected via purposive sampling, based on explicit inclusion criteria. Children were eligible if they were 4 – 6 years old, enrolled at the designated kindergarten, and had caregivers who consented to provide accurate information and participate in the study.

Data were gathered using two primary instruments:

1. Screen Time Observation Form: This was completed by parents or caregivers to record the daily duration and specific types of screen exposure.
2. Preschool Language Scale-Fifth Edition (PLS-5): This standardized and widely accepted tool was administered to evaluate the children's receptive and expressive language skills.

Data collection occurred during a single, defined period, consistent with the cross-sectional design. All completed instruments were checked for comprehensiveness before analysis. Descriptive statistics were used to summarize the patterns of screen use and the categories of language development. Given that the data did not meet the assumptions for parametric testing, the Spearman's rho correlation test was selected to examine the relationship between screen time and language scores. Ethical procedures were strictly followed, including securing informed consent, ensuring participant confidentiality, and guaranteeing the right to withdraw at any time.

RESULTS

1. Responden Characteristics

Table 1. Frequency Distribution of Preschool Children's Characteristics

Characteristics	Frequency (n)	Percentage (%)	$\bar{x}$	s
Children's Age				
5 years old	23	76.7		
6 years old	7	23.3	2.23	0.430
Total	**30**	**100**		
Gender				
Male	12	40		
Female	18	60	1.60	0.498
Total	**30**	**100**		

The demographic analysis of the children (Table 1) revealed that the majority of preschoolers (76.7%) were 5 years old (n=23, mean age of 2.23). Furthermore, most participants were female (60%) (n=18, mean of 1.60).

Table 2. Frequency Distribution of Parents' Characteristics

Characteristics	Frequency (n)	Percentage (%)	$\bar{x}$	s
Mother's Age				
19-29 years old	6	20		
30-64 years old	24	80	1.80	0.407
Total	**30**	**100**		
Mother's Education				
SMP	2	6.7		
SMA/SMK	21	70	3.17	0.531
University	7	23.3		
Total	**30**	**100**		
Mother's Occupation				
Employee	2	6.7		
Entrepreneur	2	6.7		

Housewife	25	83.3	5.70	1.055
Others	1	3.3		
Total	**30**	**100**		
Father's Age				
19-29 years old	2	6.7		
30-64 years old	28	93.3	1.93	0.254
Total	**30**	**100**		
Father's Education				
SD	2	6.7		
SMP	1	3.3		
SMA/SMK	23	76.7	2.97	0.669
University	4	13.3		
Total	**30**	**100**		
Father's Occupation				
Laborer	1	3.3		
Employee	24	80		
TNI	1	3.4		
PNS	1	3.3	2.43	1.223
Entrepreneur	2	6.7		
Others	1	3.3		
Total	**30**	**100**		

Analysis of parental characteristics (Table 2) indicated that the largest group of mothers (80%) and fathers (93.3%) were aged 30–64 years (n=24 and n=28, respectively). The predominant educational level for both mothers (70%) and fathers (76.7%) was high school or vocational school (SMA/SMK). Regarding occupation, the majority of mothers were housewives (83.3%) (n=25), and most fathers were employed in the private sector (80%) (n=24)

2. The Relationship Between Screen Time Usage and Language Development

Table 3. Cross-Tabulation Between Screen Time Use and Receptive Language Development of Preschool Children

Screen Time Use	Receptive Language Development						Total	
	Below Average		Age-Appropriate		Above Average			
	n	%	n	%	n	%	n	%
High screen time (> 120 minutes /day)	1	5	8	44.	0	0	1	1
Low screen time (≤ 120 minutes /day)	0	0	1	83.	2	1	1	1
Total							3	1

Receptive Language Development (Table 3) cross-tabulation showed that the majority of children categorized with High Screen Time (HST >120 minutes/day) displayed below-average receptive language skills (55.6%) (n=10). Conversely, most children with Low Screen Time (LST ≤120 minutes/day) exhibited age-appropriate receptive language abilities (83.3%) (n=10).

Table 4. Cross-Tabulation Between Screen Time Use and Expressive Language Development of Preschool Children

Screen Time Use	Expressive Language Development						Total	
	Below Average		Age-Appropriate		Above Average			
	n	%	n	%	n	%	n	%
High screen time (> 120 minutes/day)	1	66.	6	3.3	0	0	1	10
Low screen time (≤ 120 minutes/day)	0	0	12	100	0	0	1	10
Total							3	10

Expressive Language Development (Table 4) the largest group of preschoolers with HST (>120 minutes/day) demonstrated below-average expressive language skills (66.7%) (n=12). Notably, all children with LST (≤120 minutes/day) (100%) (n=12) showed age-appropriate expressive language abilities.

Table 5. Cross-Tabulation Between Screen Time Use and Language Development of Preschool Children

Screen Time Use	Language Development						Total	
	Below Average		Age-Appropriate		Above Average			
	n	%	n	%	n	%	n	%

High screen time (> 120 minutes /day)	1	7	4	22.2	0	0	1	1
Low screen time (≤ 120 minutes /day)	0	0	1	10	0	0	1	1
Total							**3**	**1**

Overall Language Development (Table 5) showed a similar pattern for total language scores: the majority of children with HST (>120 minutes/day) were classified as having below-average total language skills (77.8%) (n=14). In stark contrast, all children with LST (≤120 minutes/day) (100%) (n=12) exhibited age-appropriate total language abilities.

3. Spearman's Rho Correlation Test

Table 6. Hypothesis Testing of Screen Time Use and Language Development of Preschool Children

Screen Time Use	**Expressive Language Development**			**Total**	**Sig. (2-tailed)**	**Correlation Coefficient**
	Below Average	**Age-Appropriate**	**Above Average**			
	%	%	%			
High screen time	7	2	0		0	-0.764

Low screen time	0	1	0
Total			

The Spearman Rho analysis (Table 6) confirmed a statistically significant relationship between screen time usage and language development in preschool children. The test yielded a significance value of 0.001 (<0.05) and a negative correlation coefficient of −0.764. This result led to the rejection of the null hypothesis and indicates that greater screen time is associated with lower language development scores.

DISCUSSION

1. Screen Time Usage in Preschool Children

Screen time was measured using an observation sheet completed by parents over 13 consecutive days to document both the type and duration of exposure. The findings revealed that the majority of preschoolers (18 children) were categorized in the High Screen Time (HST) group, exceeding 120 minutes per day. This categorization aligns with previous studies by Sugiarti et al. (2022) and Astri (2024).

The fact that most children exceeded the recommended limit is noteworthy, as the Indonesian Pediatric Society (IDAI) 2020 guidelines advise that children aged 3–6 years should restrict screen use to a maximum of 60 minutes daily, with shorter periods being preferred.

Parental factors were identified as key determinants of children's screen habits. Pyne et al. (2025) highlighted three critical influences: parental modeling (children imitating parent habits), parental self-efficacy (greater confidence in managing use leads to lower exposure), and the enforcement of rules (time limits, content restrictions, and designated areas). Television and smartphones were the most frequently used devices, with all participants having access to both. This is often driven by parents using screens as a "babysitting aid," which contributes to increased exposure, as noted by

Jones et al. (2021).

Furthermore, parental education played a role, with most mothers and fathers having a high school/vocational school education (SMA/SMK). This educational background was linked to higher screen time among the children. This is supported by Lin et al. (2022) and Pons et al. (2020), who emphasized that parental education shapes home supervision and excessive screen time. Regarding occupation, most mothers were housewives (n=25), while most fathers were employed in the private sector (n=24). Despite mothers being present at home, children still showed high screen use, suggesting that physical presence alone does not guarantee active supervision. This is consistent with Xie et al. (2023), who found that maternal employment (formal or informal) can increase children's screen time, while paternal occupation showed no significant effect.

In summary, the study concluded that the majority of preschoolers had high screen time (>120 minutes per day), with smartphones and television being the most common devices. The duration of screen time was influenced by the caregiving environment, parental education level, and parental occupation

2. Language Development in Preschool Children

The Preschool Language Scale-Fifth Edition (PLS-5) was the primary tool used to assess language abilities, measuring Auditory Comprehension (AC) for receptive language, Expressive Communication (EC) for expressive language, and a Total Language Score. Standard scores were used for interpretation: scores below 85 indicate below-average skills, scores between 85 and 115 represent age-appropriate abilities, and scores above 115 reflect above-average performance.

Overall, the results indicated that most participants displayed language skills appropriate for their age. Specifically, age-appropriate skills were found in 18 children for receptive language, 18 for expressive language, and 16 for the total language score. Most participants were aged 5 years (n=23) and 6 years (n=7).

a. Receptive language for 5 – 6 years old involves following complex instructions and retelling what they hear with richer vocabulary. This can be supported through activities like storytelling and language-based games.
b. Expressive language includes communicating desires and emotions in simple sentences, conveying ideas, and retelling simplified stories. Skills can be enhanced through activities such as role-playing and Dialogic Reading Programs.

Gender was also a factor, as most participants were female (n=18). This aligns with previous research by Azzahro et al. (2021) and Wang (2023) (cited in Sudirlan et al., 2024), which suggests that girls often exhibit stronger language abilities than boys.

Multiple factors influence preschool language development, including external factors such as the child's knowledge, socioeconomic status, and parenting style. Environmental factors significantly affect language progression from single words to complex sentences.

a. Parenting style is a key determinant. Supportive parenting that provides verbal stimulation, responsiveness, and varied language exposure accelerates language acquisition.
b. Parental age influences knowledge and parenting style. Most mothers (n=24) and fathers (n=28) were classified as adults (30–64 years). Older parents are often linked to greater experience and emotional stability, supporting consistent verbal interaction. Zhang & Xie (2020) reported a positive association between maternal age and language development, particularly concerning emotional and verbal engagement. However, Morawska et al. (2025) caution that adult age does not guarantee effective interaction.
c. Parental education impacts language development. Higher-educated parents are more likely to access and apply information on effective language stimulation. Hoff et al. (2022) found that maternal education is linked to the quality and quantity of vocabulary children receive, while Lin et al. (2022) reported it affects engagement in early literacy activities.
d. Socioeconomic status (SES) also plays a role. Most mothers were housewives (n=25) and most fathers were in the private sector (n=24), indicating generally adequate SES.

In conclusion, while most children showed age-appropriate language development, key influences included gender, the child's environment/knowledge, parenting style, and socioeconomic status. Parental age and education shape parenting knowledge and style, while occupation shapes SES.

3. The Relationship between Screen Time Usage and Language Development in Preschool Children

The study's primary finding is the statistically significant association between screen time exposure and language development, confirmed by the Spearman Rho analysis (Sig. 0.001, correlation −0.764). This correlation indicates that increased screen time negatively impacts the language abilities of children aged 4–6 years in the studied kindergarten.

This outcome is consistent with previous research, such as that by Suminar (2021) (in Manfaatin et al., 2024), which suggested that extensive screen exposure can impede language growth. One contributing factor is the content's linguistic nature, which often features foreign languages, making comprehension and verbal response difficult for children and potentially leading to reduced communication and quieter behavior.

The issue of limited parent-child interaction is compounded by factors like parental education. As most parents had a high school education, this aligns with Lin et al. (2022) who found that maternal education affects engagement in early literacy activities like interactive conversations. Parents with higher education generally have greater access to information on effective verbal stimulation. The negative link between prolonged screen time and language outcomes (both receptive and expressive) is further supported by Nazeera et al. (2022) and Amanda et al. (2024). Khanwal et al. (2023) similarly observed that increased screen time leads to slower language development.

Despite most parents being in the adult age range (30–64 years), which Zhang and Xie (2020) linked to better language development through enhanced interaction, Morawska et al. (2025) noted that adult age alone does not guarantee effective parenting in controlling screen time; parental knowledge and household rules are

crucial.

The results strongly reinforce the 2020 recommendations of the Indonesian Pediatric Society (IDAI). Since most children in the sample had HST (>120 minutes/day) and exhibited below-average language skills, the study underscores the need to limit daily screen exposure to no more than 60 minutes for 3–6 years old to promote optimal language growth. Socioeconomic conditions also play a part. Even with most mothers being housewives (n=25), children still had high screen time, suggesting that maternal presence is insufficient without active monitoring. Limited interaction with fathers due to work may also reduce language stimulation.

In conclusion, the study established a significant negative correlation between screen time and language development in preschoolers. Excessive screen exposure negatively affects language acquisition, emphasizing the necessity for consistent parental monitoring and the encouragement of linguistically enriched, interactive screen-based activities.

CONCLUSIONS

This research, conducted at 'Aisyiyah Bustanul Athfal 7 Lawang Kindergarten with 30 participating preschoolers, concluded the following:

1. The majority of children demonstrated substantial screen exposure, with daily usage exceeding 120 minutes.
2. Smartphones and television were the most frequently used media devices.
3. Evaluation via the PLS-5 showed that most children exhibited age-appropriate language development skills.
4. The Spearman's Rho test confirmed a significant negative correlation ($r = -0.764$, $p < 0.05$) between the duration of screen time and language development in children aged 4–6 years, indicating that greater screen usage is associated with poorer language outcomes.

These findings underscore the critical need for careful regulation of screen time and the active encouragement of interactive, language-rich activities to support early

developmental progress.

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