



THE ASSOCIATION BETWEEN GADGET USE AND SOCIAL DEVELOPMENT AMONG CHILDREN

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ABSTRACT

The increasing use of gadgets among young children raises concerns about its impact on their social development, particularly in terms of their ability to interact with others, build empathy, and develop communication skills essential for daily life. Approximately 5-10% of children experience developmental delays. This research focuses on examining the relationship between gadget use and social development among children. This study utilizes an analytical method. The population includes parents and students at KB-TK Ar-Rohmah Surabaya, with a sample size of 100 selected based on inclusion and exclusion criteria. The sample consists of 80 respondents using purposive sampling technique. The independent variable is gadget use, and the dependent variable is social development. The research instruments include a gadget usage questionnaire and interviews using the Denver Development Screening Test (DDST). Data analysis utilizes the Rank Spearman correlation test. Data analysis reveals that nearly half (47.5%) of respondents have moderate gadget usage levels, with the majority (61.3%) experiencing normal social development. The significant Spearman rank test results with a significance level of $\alpha=0.05$ show $p=0.005 < \alpha=0.05$, indicating a significant relationship between gadget use and social development. Gadget use can influence social development among children.

Keywords: children; gadget use; social development

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INTRODUCTION

The rapid advancement of digital technology has transformed media access, which was once limited to television, into the widespread use of gadgets. In the current era of globalization, gadgets have become essential tools for social interaction and information access. Their use is no longer limited to adolescents and adults but has also become increasingly common among children aged three to six years. Appropriate and supervised gadget use may provide positive benefits for children. Educational applications designed according to children's developmental stages can enhance cognitive, motor, and creative skills. Gadgets also facilitate communication with family members and friends through video calls. However, excessive gadget use may have negative consequences, including sleep disturbances, reduced attention span, and impaired social development, which may ultimately lead to social isolation (Rismala et al., 2021). These adverse effects are often associated with inadequate parental supervision and limited control over children's gadget use (Putri et al., 2021).

According to the World Health Organization (WHO), approximately 5–10% of children worldwide experience developmental delays. Data from Statistics Indonesia (BPS) in 2022 showed that 33.44% of Indonesian early childhood children used mobile phones. Furthermore, approximately 1–3% of children under five years of age experience developmental delays affecting motor, language, social, emotional, and cognitive development. Recent evidence indicates that the average age at menarche generally ranges from 11 to 14 years, although variations exist across populations due to genetic, nutritional, socioeconomic, and environmental factors. The prevalence of early menarche

has shown an increasing trend in several countries, highlighting the need for continued monitoring and preventive strategies among adolescents (World Health Organization, 2024; International Federation of Gynecology and Obstetrics, 2023).

A preliminary study conducted between May and June at AR-Rohmah Preschool and Kindergarten, Surabaya, involving seven parents revealed that all parents had provided smartphones to their children. Four parents reported that their children spent more time using gadgets than playing with their peers. Consequently, children tended to spend more time interacting with gadgets rather than engaging in direct social interaction and play with other children. One of the major factors influencing children's tendency to use gadgets is the level of parental supervision and guidance. This factor affects both the duration of gadget use and the type of content accessed by children. Excessive gadget use may reduce children's opportunities for social interaction, leading to social isolation and decreased communication skills (Oktarini, Riski Dwi, & Entianopa, 2021). Consequently, children may experience difficulties in developing healthy social relationships.

Parental involvement in managing gadget use among children aged 0–6 years plays a crucial role in supporting children's social development. Parents can promote healthy social development by supervising and limiting gadget use, establishing appropriate screen-time limits, maintaining effective communication regarding gadget utilization, educating children about the positive and negative effects of gadget use, and teaching them to use digital devices safely and responsibly. In addition, parental control features and restricted access to inappropriate websites are necessary strategies to regulate children's gadget use (Sugiarti & Andyanto, 2022). These measures are important to minimize the potential negative effects of gadget use, particularly on children's social development.

Therefore, effective communication patterns between parents and children within the family environment are essential for fostering healthy social development. Through appropriate supervision, access restrictions, and positive communication, parents can create an environment that supports children's healthy development while helping them cope with the challenges posed by technological advancement. Based on these phenomena and the supporting evidence, this study aimed to examine the association between gadget use and social development among children attending AR-Rohmah Preschool and Kindergarten, Surabaya.

METHOD

This study employed an analytical correlational design with a cross-sectional approach. The study aimed to examine the association between gadget use and children's social development. In a cross-sectional design, data on all variables are collected simultaneously at a single point in time (Hulley et al, 2022). The independent variable was gadget use, while the dependent variable was children's social development. The study population consisted of 100 children who used gadgets and their mothers. A total of 80 child–mother pairs were recruited as the study sample. Participants were selected from the accessible population using a non-probability sampling approach, specifically purposive sampling. This sampling technique was chosen to obtain participants who met the inclusion criteria and were considered representative for addressing the research objectives. Data were analyzed using the Spearman's rank correlation. Statistical significance was set at $\alpha = 0.05$. A p-value of less than 0.05 was considered statistically significant, indicating a significant association between gadget use and children's social development.

RESULT

This general data shows the results of the frequency distribution of respondents studied in children and parents at KB-TK Ar-Rohmah Surabaya including child gender, parent gender, child age, parent education, family income, parent (mother) occupation.

Respondent characteristics based on gender

Table 1.

Frequency distribution of respondents based on child gender

Gender	f	%
Man	40	50
Woman	40	50

The data in table 1 shows that of the 80 child respondents, half (50%) were male and female.

Table 2.

Frequency distribution of respondents based on gender of parents

Gender	f	%
Man	0	0
Woman	80	100

The data in table 2 shows that of the 80 parent respondents, all (100%) were female.

Respondent Characteristics Based on Child Age

Age classification based on gender can be seen in the table below:

Table 3.

Distribution of respondent frequencies based on children's age

Age	f	%
3 years	8	10
4 years	25	31.3
5 years	25	31.3
6 years	22	27.5

The data in table 3 shows that of the 80 respondents, almost half of the respondents (31.3%) were aged 4 and 5 years.

Table 4.

Frequency distribution of respondents based on parental education

Parental Education	f	%
Basic education	0	0
Secondary education	37	46.3
Higher education	43	53.8

The data in table 4 shows that of the 80 respondents, the majority (53.8%) of parents had higher education.

Respondent Characteristics Based on Family Income

In this study, income is divided into two, namely less than the UMK (City Minimum Wage) and more than the UMK in accordance with the UMK in the city of Surabaya, which is IDR 4,725,479.00 as shown in the following table:

Table 5.

Frequency distribution of respondents based on family income

Family Income	f	%
>UMK	60	75
<UMK	20	25

Table 5 shows that of the 80 respondents, the majority (75%) of families have incomes above the UMK in the city of Surabaya.

Table 6.

Frequency distribution of respondents based on parents' (mother's) occupation

Age	f	%
Work	41	51.3
Doesn't work	39	48.8

Table 6 shows that of the 80 respondents, the majority (51.3%) of parents (mothers) work.

Special Data

Specific data explains the research results of independent variables, dependent variables dependent, and cross-tabulation between the dependent variable and the dependent variable between gadget use and social development.

Gadget Use

From the results of data collection, the frequency distribution of respondents based on gadget use was found as follows.

Table 7.
Distribution of respondent frequencies based on the level of gadget use in children.

Gadget Usage Level	f	%
Good	23	28.8
Currently	38	47.5
Bad	19	23.8

Table 7 shows the level of gadget usage of 80 respondents, almost half (47.5%) or 38 respondents with a moderate level of gadget usage.

Respondent characteristics based on social development

Table 8. Frequency distribution of respondents based on social development in children

Gadget Use	Social Development						Total	
	Normal		Doubtful		Abnormal		f	%
	f	%	f	%	f	%		
Good	17	73.9	6	26.1	0	0	23	100
Currently	26	68.4	10	26.3	2	5.2	38	100
Bad	6	31.5	11	57.8	2	10.5	19	100

Table 8 shows that children with good gadget use mostly had normal social development (73.9%). In contrast, children with poor gadget use were more likely to have doubtful social development (57.8%) and had the highest proportion of abnormal social development (10.5%). This indicates that poorer gadget use tends to be associated with less favorable social development outcomes.

The relationship between gadget use and social development in children

The results of research on the use of gadgets and social development in children

Table 9.
Cross tabulation between gadget use and social development in children

Social Development	f	%
Normal	49	61.3
Doubtful	27	33.8
Abnormal	4	5
Unable to Test	0	0

Table 9 shows that of the 38 respondents, the majority (68.4%) had moderate gadget use and experienced normal social development. The cross-tabulation results of the relationship between gadget use and social development were then analyzed using the *Spearman rank test* with a significance level of $\alpha = 0.05$ and SPSS calculations obtained a significant result of 0.005, where $\rho = 0.005 < \alpha = 0.05$ which means $\rho < \alpha$ which means $\rho < \alpha$ then H_0 is rejected, which means there is a relationship between gadget use and social development in children.

DISCUSSION

Gadget Use

The findings presented in Table 7 indicate that, among the 80 respondents, nearly half (47.5%; $n = 38$) demonstrated a moderate level of gadget use. This finding suggests that most parents attempt to balance children's exposure to digital technology with other daily activities. Parents who recognize the educational potential of digital devices tend to regulate their children's screen time while allowing access to age-appropriate educational applications, such as those introducing colors,

shapes, numbers, literacy, and interactive learning videos. At the same time, they establish clear time limits to prevent excessive gadget use and encourage healthy digital habits.

In addition to regulating screen time, parents encourage children to engage in various non-digital activities that support physical, cognitive, and socio-emotional development, including outdoor play, sports, storytelling, drawing, music, and cooperative games. Consequently, the moderate level of gadget use observed in this study reflects parents' efforts to balance digital technology with activities that promote creativity, communication, and direct social interaction. Parents also tend to monitor the type of digital content accessed by their children to ensure that it is developmentally appropriate and educational.

Recent evidence suggests that the developmental impact of gadgets depends not only on the duration of use but also on the quality of digital content, parental involvement, and children's overall lifestyle. Educational digital media can enhance language acquisition, early literacy, cognitive skills, and problem-solving abilities when accompanied by active parental guidance. However, prolonged recreational screen exposure without supervision has been associated with reduced physical activity, sleep disturbances, behavioral problems, and delayed social competence (World Health Organization, 2023; American Academy of Pediatrics, 2024).

Furthermore, several recent studies have reported that moderate and supervised gadget use can provide meaningful learning opportunities while minimizing negative developmental consequences. The active participation of parents in selecting educational applications, co-viewing digital content, and discussing online experiences with children has been shown to improve children's cognitive engagement and reduce the potential adverse effects of excessive screen exposure (Madigan et al., 2022; Domoff et al., 2023). Therefore, the present findings indicate that balanced gadget use, accompanied by consistent parental supervision, may contribute positively to children's development while preventing excessive dependence on digital devices.

Social Development

Table 7 also shows that the majority of respondents (61.3%; $n = 49$) exhibited a moderate level of social development. This finding may be attributed to limited positive interactions with parents and peers, including communication, cooperative play, emotional expression, and participation in group activities. Children's social development is shaped through everyday experiences such as playing, sharing, cooperating, solving conflicts, and communicating with others in both family and school environments.

Children with healthy social development generally grow up in supportive environments that provide opportunities for meaningful interpersonal interaction. During the preschool years, children rapidly develop essential social competencies, including communication skills, empathy, cooperation, emotional regulation, self-confidence, and the ability to follow social norms. These competencies are strengthened through direct interaction with parents, teachers, siblings, and peers. Positive peer relationships also facilitate children's ability to resolve conflicts, express emotions appropriately, and establish healthy interpersonal relationships throughout later stages of development.

Recent developmental research emphasizes that early childhood represents a critical period for social and emotional learning. Social competence acquired during preschool has been associated with improved academic readiness, emotional well-being, and interpersonal relationships later in life. Conversely, limited opportunities for direct social interaction may hinder children's communication skills, emotional regulation, and adaptive behavior (Denham et al., 2022; Jones et al., 2023). These findings are consistent with previous evidence suggesting that supportive family

environments and frequent peer interactions remain fundamental determinants of optimal social development.

Association Between Gadget Use and Social Development

The Spearman's rank correlation analysis demonstrated a statistically significant association between gadget use and children's social development ($p = 0.005$), which was lower than the predetermined significance level ($\alpha = 0.05$). Therefore, the null hypothesis was rejected, indicating a significant relationship between gadget use and social development among children attending AR-Rohmah Preschool and Kindergarten, Surabaya.

The findings suggest that higher levels of gadget use are associated with an increased likelihood of impaired social development. Although gadgets offer numerous educational benefits, excessive screen exposure may reduce opportunities for face-to-face communication, cooperative play, and emotional interaction with parents and peers. These direct interactions are essential for developing empathy, language skills, emotional intelligence, cooperation, and conflict-resolution abilities during early childhood.

Recent systematic reviews have consistently demonstrated that excessive screen time is associated with poorer social competence, delayed language development, behavioral problems, emotional difficulties, and reduced peer interaction among preschool children. Conversely, limited screen time combined with active parental mediation and high-quality educational content appears to minimize these negative effects and may even contribute positively to children's learning experiences (McArthur et al., 2022; Madigan et al., 2022).

From the researchers' perspective, gadget use among young children should not be completely prohibited but rather carefully supervised and integrated into balanced daily routines. Parents play a central role in determining not only how long children use gadgets but also what content they access and how digital activities are integrated with physical play, family communication, and social experiences. International recommendations advocate limiting recreational screen time while promoting active parent-child interaction to support optimal cognitive, emotional, and social development (World Health Organization, 2023; American Academy of Pediatrics, 2024).

Overall, the findings of this study demonstrate that gadget use is significantly associated with children's social development. Although digital technology has become an integral part of children's daily lives, maintaining a balance between screen-based activities and direct social interaction remains essential. Educational gadget use accompanied by parental supervision may provide developmental benefits, whereas excessive and unsupervised use may negatively affect children's social competence. Therefore, collaborative efforts involving parents, teachers, and healthcare professionals are necessary to promote healthy digital habits and optimize children's social development during early childhood.

CONCLUSION

This study found a statistically significant association between gadget use and social development among children attending AR-Rohmah Preschool and Kindergarten, Surabaya. Most children demonstrated moderate levels of gadget use and social development, and higher levels of gadget use were associated with poorer social development. These findings highlight the importance of appropriate parental supervision and balanced gadget use to ensure that digital technology supports, rather than hinders, children's social development. Parents should establish reasonable screen-time limits, provide age-appropriate educational content, and encourage direct social interaction and participation in non-digital activities to promote healthy social and emotional development during early childhood.

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