Relationship of Gadget and Socioemotional Development in Children

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ABSTRACT

The presence of gadgets in children's environment has made them an inevitable and increasingly normative component of 21st-century life. Over the last three decades, the accessibility and usage of gadgets have increased among young children. One of the effects of gadget usage on children is self-isolating from social life and lack of emotional management. The objective of the pilot study was to examine the frequency of gadget use among pre-schoolers. Forty parents of preschoolers, aged 4 to 6 years, participated in the study. Twenty-two of the children were boys and 18 were girls. Majority of the sample were Malays. This study employed the Family Media Ecology model to understand the way in which media is used by the family members and to determine the extent to which media patterns either promote or interfere with early learning. The parents were administered the Malay version of the Developmental Profile 3 (DP-3) to measure a child's development on social-emotional. Results showed that most families owned a smartphone (95%), paid TV/ASTRO (72.5%), and had a laptop/desktop (70%). The duration of gadget use among children was much lower during the school day than during the school holiday. Specifically, during school days, 70% and 17.5% of the children used gadgets at a moderate and high level, respectively. During school holidays, 32.5% and 57.5% of the children used gadgets at a moderate and high level, respectively. The analyses revealed there are negative relationships between both gadgets use during school days ($r=-.232$, $p>.05$) and school holidays ($r=-.112$, $p>.05$) and the socioemotional development of children, which however, is not significant. The findings have important implication that is to take necessary steps toward regulating gadget use among children in Malaysia.

Keywords: Gadgets, children, Social-emotional development, pilot study

INTRODUCTION

The pervasive presence of digital gadgets has become a defining characteristic of the twenty-first century, profoundly shaping the developmental environment of young children. Gadgets, defined as small mechanical or electronic devices with practical uses, such as mobile phones, smartphones (including iPads, iPhones, iPods, and tablets), have integrated seamlessly into everyday life, impacting various aspects of children's development. The importance of meaningful everyday situations in children's development has been highlighted, emphasizing the critical role of immediate environments, experiences, and social interactions in shaping their growth (Andersson et al., 2023). Over the past three decades, the accessibility and utilization of these gadgets have seen a significant increase among young children. This trend has catalyzed a growing body of research focused on the potential impacts of gadget usage on various aspects of child development, particularly socio-emotional development

Socio-emotional development encompasses a child's ability to form and maintain interpersonal relationships, understand social and emotional contexts, and exhibit appropriate behavior in social situations (Nikolayev et al., 2015). This includes interactions with peers, family members, and adults. Previous studies have highlighted excessive gadget usage's potential negative and positive impacts on children's socio-emotional development. Researchers such as Wartella et al., (2013); Rasti et al., (2023), Burns and Gottschalk, (2019), Bochicchio et al., (2018), Granic et al., (2014), Ashari et al., (2018) and Meersand, (2017) have documented issues related to socio-emotional development while using gadgets such as the development of social skills in collaboration, empathy, and emotional management when used in a planned manner in a supportive environment and also helps improve problem-solving skills, critical thinking, and teamwork among children. They also reported that increased social isolation and poor emotional regulation were associated with high levels of gadget use. Furthermore, intensive gadget use has shown a strong relationship between the intensity of gadget use and the social and emotional development of children (Rukmana et al., 2021).

In accordance with the above scenario, the ubiquity of gadget use among children is underscored by national and international statistics. According to the Communications and Multimedia Commission of Malaysia (2018), 73.4% of children use gadgets, in contrast to the 26.6% who do not. Further, reports from the Department of Statistics Malaysia (2020) and UNICEF Malaysia (2020) reveal that nine out of ten children in Malaysia engage with gadgets. Globally, Rideout, (2013, 2017) found that children under the age of eight spend an average of two and a half hours per day using gadgets. (Burns & Gottschalk, 2019a) reported that 16% of children worldwide use gadgets for more than six hours a day outside of school hours on weekdays, with an additional 26% exhibiting similarly high usage.

These statistics highlight the critical need to understand the relationship between gadget usage and socio-emotional development among young children. Given the increasing integration of digital media into children's lives, it is imperative to discern whether early exposure to gadgets poses a risk to their social-emotional growth or if it can be harnessed for developmental benefits (Joseph et al., 2022). Parental guidance plays a crucial role in monitoring and mitigating the negative effects of gadget use on early childhood development (Cahyani et al., 2022). Parents, regardless of their varying levels of digital proficiency, are increasingly important in shaping their children's digital skills development and managing gadget usage (Pisarenko & Zaichenko, 2021). Parents need to enhance their parenting strategies, while governments should provide accurate information on gadget use and online security for early childhood (Nuhla et al., 2018).

After various debates and reports regarding the effects of gadgets on children's development, whether good or bad, this study focuses on examining and investigating the relationship between gadget usage and socio-emotional development among children in Malaysia. By examining the frequency and patterns of gadget use among children aged four to six, this research seeks to elucidate the potential impacts of digital media on early childhood development. Utilizing the Family Media Ecology model and the Malay version of the Developmental Profile 3 (DP-3), this study attempts to provide a comprehensive understanding of how gadget use within families can either promote or interfere with the socio-emotional development of young children. Therefore, the research questions and objectives are as follows:

Research Questions

1. What are the patterns of gadget usage (during school days and school holidays) among children?
2. Is there any relationship between pattern of gadget usage and socio-emotional development in children?

Objectives

1. To identify patterns of gadget usage (during school days and school holidays) among children.
2. To analyze the relationship between gadget usage patterns and socio-emotional development in children

METHODOLOGY

The main design of this study is a cross-sectional survey method with a quantitative approach. A cross-sectional study was applied in this research to ease the researcher to generalize the results. This method can provide a quantitative or numerical picture of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell & Creswell, 2018). Additionally, the Malay version of the Developmental Profile 3 (DP-3) was administered to parents to measure their children's development. The questionnaire was translated from English to Malay language to ensure the respondents understand about the items.

The research was conducted at a kindergarten in Kajang, Selangor, and involving 40 parents of preschool children aged 4 to 6 years. The factor in selecting early children in this study was their access to gadgets and the age phase which is currently very valuable and would potentially have an impact on their development and future. Data was collected through surveys administered to the parents, which included questions about the types and frequency of gadget usage by their children. Statistical Package for Social Science (SPSS) Version 28.0 was used to analyze and identify patterns and correlations between gadget use and social-emotional development, with a particular focus on differences observed during school days versus school holidays.

The Malay version of the Developmental Profile 3 (DP-3) for socio-emotional development of children has been tested for reliability and validity. The value of Cronbach Alpha (α) for the instrument is 0.78, indicating a highly reliable instrument. Whilst, inter-item correlation for this instrument has been proved to be significant ($F= 17.54$, $p<.001$), suggesting that the instrument is valid for further use.

This methodology provided a comprehensive overview of gadget usage among preschoolers and its potential impact on their social-emotional development, contributing valuable insights for regulating gadget use among children in Malaysia.

LITERATURE REVIEW

There is a large volume of published studies describing the role of gadgets on children's development. The most crucial and fundamental time for children to experience rapid growth and development is during their early years. The stimulus that is given to children in the early childhood stage, which spans from ages 0 to 6, is crucial for the development tasks that follow. Early childhood is inextricably linked to socio-emotional development, which is the process by which kids learn to adjust to and comprehend circumstances and feelings by interacting with others and by listening, watching, and copying what they see (Zainal Abidin et al., 2022)

Previous studies have reported that a child becomes insensitive to the environment around him. A study by Wahyuni et al., (2019) on 103 children in Medan, Indonesia, aimed to determine the relationship between the duration of playing with gadgets and the mental-emotional state of children found that there is a significant relationship between mental-emotional and the duration of playing gadgets and the frequency of using gadgets among children. In Malaysia, 9 out of 10 children were actively using gadgets (UNICEF Malaysia, 2020). Children who have become very dependent on gadgets, would have negative sentiments if they lost their gadgets, and the majority would say that they would be angry, sad, and insecure. Children who are too obsessed with their gadgets would result them in forgetting to interact or communicate with people around them and their families, and that will harm their social development.

Similarly, Agustin et al., (2019) evaluated 104 children between 3 to 6 years of age and discovered that children who use gadgets for more than an hour are more likely to have aberrant emotional development than children who use them for 1 to 30 minutes a day. Children who use electronics for extended periods may become more aggressive because they are unable to comprehend the contrasts in other people's viewpoints. Several previous researchers have also documented similar findings, such as Zain et al., (2022) and Fazree

and Zakaria, (2018) stated that children's excessive use of technology may have an impact on their social development. They may become introverted, for instance, and would rather be by themselves than converse with their peers.

All the studies reviewed so far have been using a quantitative approach. However, a study by Rasti et al., (2023) using a qualitative approach revealed distinct findings. They conducted qualitative descriptive research on 11 children aged 5 to 6 years old who frequently used gadgets at home. It was found that when children use gadgets collectively, they engage in interactions with their peers. As they engage with technology, they appear to be actively interacting with their friends, conversing and exchanging stories.

Haddock et al., (2022) also claimed that children who responsibly use gadgets for social media browsing and video games exhibit greater empathy and improved communication abilities. This study is in line with the study by Alotaibi, (2024) and Suhana (2018), who reported that children can improve their problem-solving abilities, memory, focus, and processing speed by playing online games. For instance, children can enhance their spatial reasoning and problem-solving abilities through puzzle games, and their memory and focus can be enhanced through memory games.

Overall, the results of this earlier study unequivocally demonstrate that children's social development is impacted by and related to their usage of gadgets.

FINDING

Table 1 shows the demographic information of the children for this research which consists of gender, age, marital status, education level of parents, types of work, monthly income, and working hours. Most children are Malay and Muslim. Also, for gender, the number of boys and girls are quite balanced in total, which is 22 and 18 children. The average age of parents is between 20 to 49 years old, 30 to 39 years old as the majority of respondents (67.05%) and the least age is 20 years old (2.5%). Most of the respondents are married and only one respondent is divorced. A total of 22 parents have degrees and work in the government followed by the private sector (27.5%), self-employed (17.5%), and not employed (2.5%). The average income of the respondent's parents is between RM 5000 and above (35%). The last part for demographics showed the working hours. The average working hours of the respondent's parents are office hours (75%, followed by shift (12.6%) and others (12.5%).

TABLE I DISTRIBUTION OF CHILDREN BASED ON THE DEMOGRAPHIC BACKGROUND

Category	**n**	**%**
Children:		
Gender		
Boy	22	55.0
Girl	18	45.0
Age		
4 years	27	67.5
5 years	11	27.5
6 years	2	5.0
Parents:		
Gender		
Male	11	27.5
Female	29	72.5
Age		
20-29 years	1	2.5

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30-39 years	27	67.5
40-49 years	12	30.0
Marital status		
Married	39	39.5
divorce	1	2.5
Education Level of Parents		
Diploma	6	15.0
Degree	22	55.0
Master	9	22.5
Others	3	7.5
Types of work		
Government	21	52.5
Private	11	27.5
Self-employed	7	17.5
Not employed	1	2.5
Monthly income		
RM2001- RM3000	5	12.5
RM3001-RM4000	11	27.5
RM4001-RM5000	10	25.0
RM5000 and above	14	35.0
Working Hours		
Office hour	30	75.0
Shift	5	12.6
Others	5	12.5

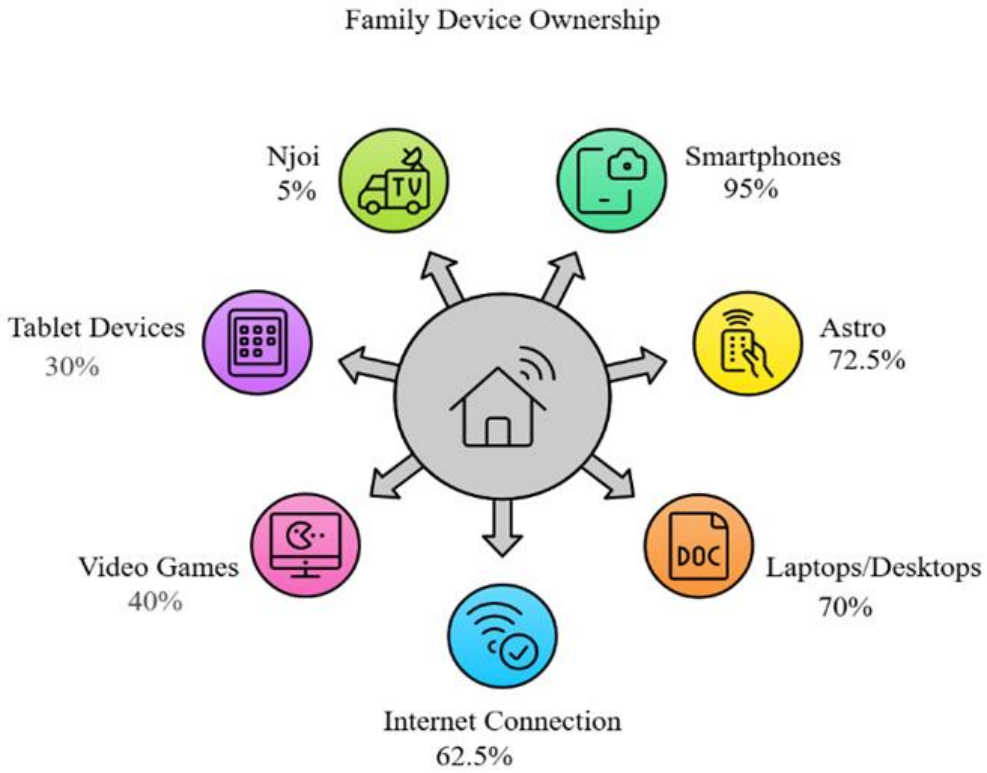

Fig. 1 Family Device Ownership at Home

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The data on family device ownership is displayed in Figure 1. This analysis is crucial in comprehending how children's development is impacted by their exposure to different technology. Smartphones are a vital tool in families' everyday lives, as seen by their ubiquitous use. According to a study by Rideout et al. (2022), using a smartphone can help with early technical skills. Among the most popular gadgets, 95% of people own a smartphone, followed by Astro (72.5%), a laptop or desktop (70%), Internet connection (62.5%), video games (40%), tablet devices (30%), video games (10%), and Njoi (5%).

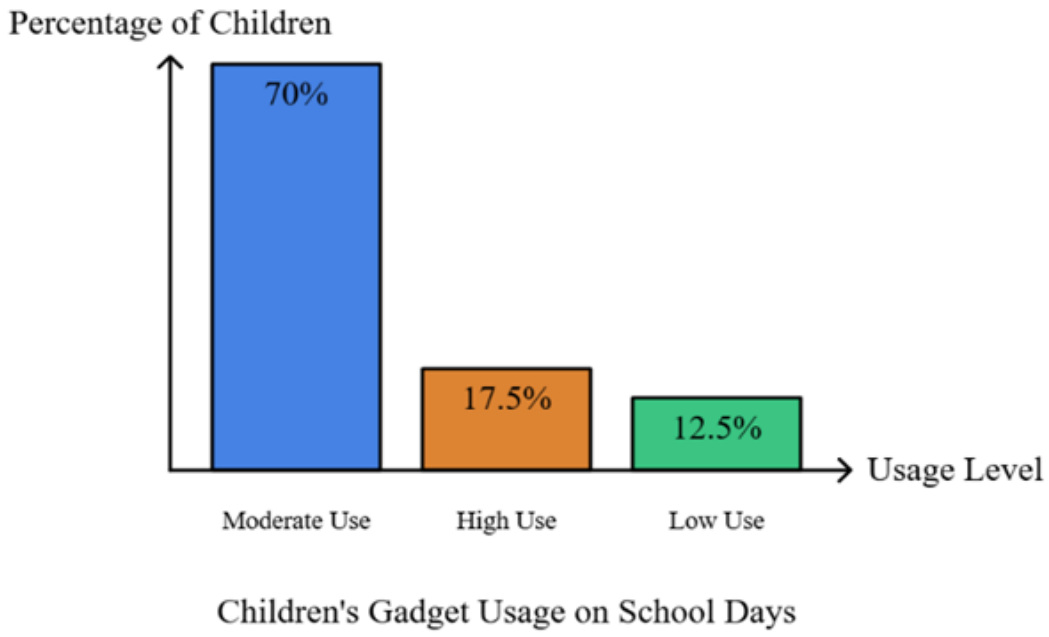

Fig. 2 Gadget Usage during School Day

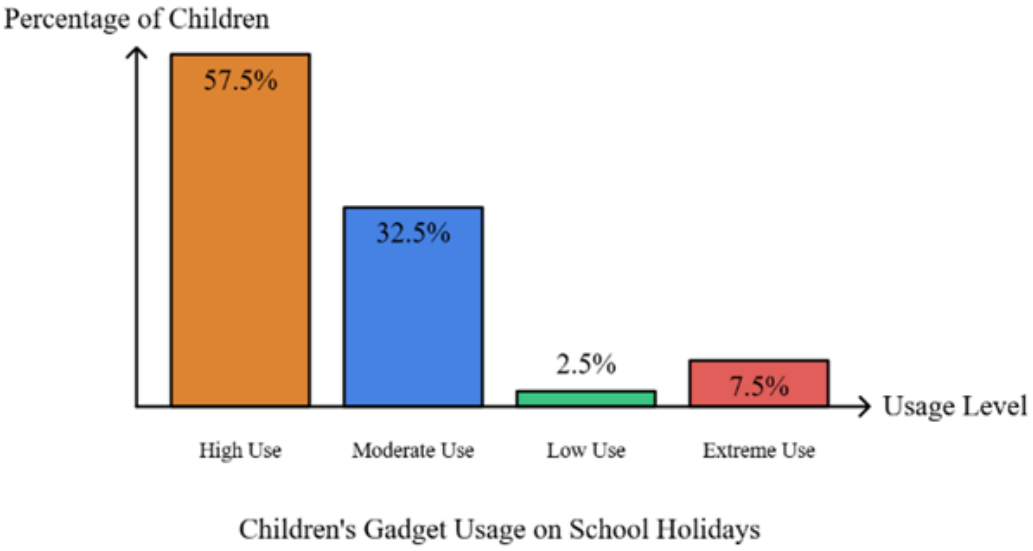

Fig. 3 Gadget usage during School Holiday

Figures 2 and 3 showed that on school days, moderate use of gadgets by children was the most dominant (70%), while high use was at 17.5%. Low use (12.5%) was smaller, while extreme use was not recorded. This pattern suggests that although children actively use gadgets, extreme dependence was moderated by the presence of school activities that regulate their daily schedule. On the other hand, during school holidays, there was a significant increase in high-level gadget use (57.5%), followed by moderate level (32.5%). Low-level use decreased to 2.5%, while extreme use increased to 7.5%. This pattern suggests that the absence of daily structure such as school encourages children to spend more time with gadgets.

TABLE II THE RELATIONSHIP BETWEEN GADGETS USE AND SOCIOEMOTIONAL DEVELOPMENT OF CHILDREN

Variable		n	M	SD	1	2	3
1.	Gadget use during school	40	4.33	.828	-		
2.	Gadget use during school holiday	40	5.70	1.68	.679*	-	
3.	Socio-emotional Development	40	31.23	3.98	-.232	-.112	-

Based on Table II, the Pearson correlation analyses show a negative relationship between both gadgets used during school days (r=-.232, p>.05) and school holidays (r=-.112, p>.05) and socioemotional development of children, which however, is not significant. Nevertheless, gadget use during school days positively correlated with gadget use during school holidays (r= .68, p <.05). These results suggested that gadget usage has a minimal and insignificant relationship with the socio-emotional development of children, indicating that its impact on their emotional growth is limited. These findings are consistent with Gottschalk (2019) and Agustin et al., (2019), who reported that the relationship between gadget use, and socio-emotional development is inconsistent and may be influenced by various other factors. The weak and statistically insignificant associations found in this study suggest that other variables beyond gadget usage might play a more crucial role in the socio-emotional development of children.

DISCUSSION

In the current digital era, children's use of gadgets has become an inescapable reality. Although numerous studies demonstrate the detrimental impacts of gadget use on children's social development, there are several reasons why this influence may not be felt. These aspects, which include the type of content access (Alotaibi, 2024; Haddock et al., 2022; Suhana, 2018), parental supervision (Jalil & Bakar, 2015; Cahyani et al., 2022; Nuhla et al., 2018; Pisarenko & Zaichenko, 2021) and the context of use will be covered in this article.

The differences between this study and previous research can be explained in several ways. The fact that children are consuming educational apps and content on their gadgets could serve a reason. Many gadgets provide educational apps and materials that are intended to improve learning cognitive abilities and socioemotional development, as opposed to being used only for leisure or pleasure. Children may benefit intellectually from using these developmentally appropriate resources without necessarily sacrificing their social-emotional development. The limited correlation in our study may be explained by this difference in content type, indicating that not all gadget use is harmful to socio-emotional development.

It is critical to acknowledge the potential advantages of online social platforms, even though excessive screen time is frequently associated with social isolation. Through virtual connections, gadgets can give children the chance to connect with peers, family, and friends. This statement supports the findings from Rasti et al., (2023). Particularly in situations where in-person interactions are scarce, like being away on holidays or in long-distance partnerships, these virtual connections might support the maintenance of social ties. Some of the detrimental effects of gadget use on socioemotional development may be lessened by the capacity to preserve social ties through digital methods.

Additionally, gadgets can be an effective means of expressing one's creativity. Children can participate in activities like storytelling, music, and sketching on a variety of digital media platforms (Alotaibi, 2024; Haddock et al., 2022; Suhana, 2018). Such artistic pursuits can counteract any negative impacts of screen time by having a beneficial impact on a child's emotional health and sense of self. The focus on creativity and self-expression through technology may account for the lack of a significant negative correlation with socioemotional development that our study found.

It is impossible to overstate the importance of parental oversight. The possible detrimental effects on social-emotional development can be greatly minimized when parents or other caregivers regularly monitor device

use and make sure the content viewed is suitable and secure. This assertion is consistent with the results of earlier studies by Jalil and Bakar, (2015), Cahyani et al., (2022), Nuhla et al., (2018) Pisarenko and Zaichenko, (2021). Children who are under supervision are shielded from dangerous content and are guided toward the positive applications of technology. One possible explanation for the limited correlation in our investigation could be the existence of such supervision in the sample population.

In light of the fact that 16% of children globally use their gadgets for more than six hours per day on weekdays and another 26% on weekends (Burns & Gottschalk, 2019b), parental mediation is crucial for monitoring children's device use. To maximize a child's development, parents should abide by the World Health Organization's (WHO) recommendations, which state that children under the age of five should spend no more than an hour a day on gadgets and those under the age of one should spend no time at all.

CONCLUSIONS

The results of this study demonstrate how complicated and multidimensional gadget use is, as well as how it affects children's socioemotional development. Our findings imply that the relationship is weak and influenced by several factors, such as the kind of content consumed, chances for online social interaction, inventive uses of devices, parental supervision, and the development of digital literacy, even though prior research has highlighted the possible risks. These factors should be further investigated in future studies to offer a more comprehensive picture of how young children's social-emotional development is impacted by gadget use.

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