IJORER : International Journal of Recent Educational Research
Homepage : https://journal.ia-education.com/index.php/ijorer
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p-ISSN : 2721-852X ; e-ISSN : 2721-7965
IJORER, Vol. 7, No. 2, March 2026
Page 693-701

The Impact of Gadget Use on the Social Development of Elementary School Students

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DOI: https://doi.org/10.46245/ijorer.v7i2.1064

Sections Info

Article history:
Submitted: August 20, 2025
Final Revised: Nov. 26, 2025
Accepted: November 29, 2025
Published: March 31, 2026

Keywords:
Impact of Gadgets; Social Development; Language Development

ABSTRACT

Objective: This study aims to describe the impact of gadget use on the social development of elementary school students. It explores the relationship between gadget usage and the social behaviors of students in grades II and V across four elementary schools in South Jakarta and Central Jakarta. **Methods**: This study uses a mixed-method approach with a sequential explanatory model. The subjects of the study consisted of 251 elementary school students in grade II and 230 students in grade V. Data were collected through quantitative and qualitative techniques, including questionnaires, interviews, and observations. Quantitative data were analyzed using inferential statistics and presented in the form of tables and charts, while qualitative data were analyzed descriptively. **Results**: The findings show a significant impact of gadget use on the social development of elementary school students. Regression analysis yielded a significant result ($p = 0.000$), indicating that gadget use at home and school influences students' social development. Despite the use of gadgets, students remain capable of socializing with their peers, understanding their friends' emotional states, maintaining friendships, recognizing friends' thoughts, attitudes, and feelings, and improving their friends' well-being. **Novelty**: This study contributes to understanding how the use of gadgets influences the social development of elementary school students, especially in the context of South and Central Jakarta. It is one of the few studies that explore this relationship in a detailed, mixed-method framework and across different school types (public and private), providing valuable insights into developmental changes in social behavior related to gadget usage.

INTRODUCTION

The development of information and communication technology has significantly influenced various aspects of human life. As globalization accelerates, the demand for quick information exchange has made communication technology crucial. A technologically advanced society relies on media to facilitate diverse activities, including those of students at school. Gadgets such as mobile phones, tablets, smartphones, and laptops have evolved from tools for communication to sources of entertainment (Ling, 2008).

Gadgets have both positive and negative impacts on children's lives. On the positive side, gadgets can stimulate critical thinking, creativity, and intelligence by supporting children's learning. They also make it easier for children to access educational content and information (Warisyah, 2015)(Laleye, 2015). However, excessive gadget use can lead to negative consequences, such as exposure to harmful content, neglect of social etiquette, and gadget addiction. These negative impacts influence emotional and social development, with some children perceiving gadgets as companions that offer social support, potentially at the cost of real-world interactions (Reeves & Nass, 1996)(Vincent, 2006)(McDaniel, B. T., & Coyne, 2014)(Newman, 2015)

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Year 2016 American Association of Pediatrics (AAP) released the results of a study that the most common media used (Epley, N., Waytz, A., & Cacioppo, 2007). However, the intense interaction with gadgets can diminish children's attention to their immediate environment and social interactions. For example, gadgets enable easier communication across distances and provide entertainment, but they can also foster isolation and reduce face-to-face interactions with peers (Harfiyanto.D, Utomo.C.B, 2015).

Research by (Manumpil,B. Ismanto,Y dan Onibala, 2015) indicates that excessive gadget use can lead to a diminished connection with the surrounding environment. Children who spend more time with gadgets often neglect in-person interactions with their peers and community. While gadgets can promote long-distance communication, they can also make children less engaged in their immediate surroundings, leading to a decrease in social interaction. Over time, this may contribute to the development of antisocial behavior (Ling, 2008).

Gadgets may also alter the concept of "solitude," making children feel content without the need for social interaction. This shift in behavior reduces their participation in group activities and affects their ability to engage in meaningful social interactions (Yoo & Donthu, 2005)(Wang, 2017). When children focus on gadgets, they are less likely to engage in typical social activities like greetings or jokes with peers, which can hinder their social development (Harfiyanto.D, Utomo.C.B, 2015). This phenomenon is concerning, especially since childhood is a critical period for developing social and language skills.

The negative consequences of gadget use include reduced social development, as children spend more time in solitude or engage primarily with digital content. Research suggests that children who use gadgets excessively may struggle with social cues, communication, and empathy, which are essential for healthy social development (Fabes, R. A., Gaertner, B. M., & Popp, 2006)(Han & Kemple, 2006). These children may also face difficulties in establishing lasting friendships, understanding emotions, and recognizing the rights of others.

Moreover, studies show that children who are addicted to gadgets tend to exhibit behaviors such as dissatisfaction, difficulty forming meaningful relationships, and poor emotional regulation (Ameliola & Nugraha, 2013). Research on social cognitive processes highlights the importance of real-world social interactions for healthy cognitive development (Kilford et al., 2016). Excessive gadget use during early childhood may hinder the development of critical social skills, as children spend less time interacting with peers and adults in person.

This study aims to address these gaps by investigating the impact of gadget use on the social development of elementary school students. Specifically, it focuses on how gadgets influence children's ability to maintain relationships, understand emotions, and engage in social behaviors. Previous studies have mostly concentrated on the negative aspects of gadget use, but few have explored the intricate relationship between gadget use and social development in depth. By utilizing a mixed-method approach, this study

p-ISSN : 2721-852X ; e-ISSN : 2721-7965
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seeks to provide a comprehensive understanding of how gadgets impact children's social interactions in both school and home environments.

The increasing prevalence of gadget use among children in Indonesia, as highlighted by eMarketer, suggests a growing need for research on this topic. Studies show that children are introduced to gadgets at a young age, with a significant percentage spending substantial time using them for both play and learning. A survey found that 92% of elementary school children considered gadgets to be companions in solitude, with many using them more for entertainment than educational purposes. This raises concerns about the long-term effects on children's social development.

This research contributes to understanding how gadget use influences social development, particularly in a context where digital media is becoming more integrated into children's daily lives. It explores the ways in which gadgets affect social behaviors and relationships, providing valuable insights for educators, parents, and policymakers.

RESEARCH METHOD

The research approach used is a mixed-method research design. This approach is a procedure for collecting, analyzing, and integrating both quantitative and qualitative methods in a study to gain a comprehensive understanding of research problems (Creswel, 2015). The study uses a Sequential Explanatory design, which involves a two-phase approach. In the first phase, quantitative data are collected, followed by an analysis of the results. The second phase uses qualitative methods to further explore and explain the initial quantitative findings (Creswel, 2015). This approach is designed for researchers with a strong quantitative background or those relatively new to qualitative methods, enabling them to combine both approaches for a deeper understanding of the research problem (Creswel, 2015).

In this study, the researcher distributed a questionnaire to 251 grade II students and 230 grade V students in four elementary schools in Central Jakarta and South Jakarta. This survey aimed to gather data on the students' gadget use patterns and their social development. The results of the quantitative phase informed the selection of participants for the qualitative phase, where the researcher followed up with in-depth interviews and observations to explore the qualitative aspects of the findings. Specifically, 16 elementary school students, consisting of 8 grade II and 8 grade V students, were selected for the qualitative phase. Data were also collected from the parents of these students and their class teachers.

The aim of the mixed-method approach is to describe the initial quantitative results in more detail through qualitative follow-up. This is essential for a thorough exploration of the students' social development in relation to their gadget use. The qualitative phase involved unstructured interviews and observations designed to probe key topics such as "self-centered behaviors" and "maintaining friendships," which were identified in the quantitative data. These topics were discussed in the conclusion and guided the interview questions. The interview guide focused on exploring students' perceptions of their gadget use, social interactions, and their ability to maintain friendships and recognize emotions.

Data collection for the qualitative phase was based on themes derived from the quantitative findings. Interviews with students and teachers, along with observations of students in their school environment, provided additional context for the data collected in the first phase. These qualitative methods allowed the researcher to explore how the use of gadgets influenced students' social behavior in real-life contexts.

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The quantitative data obtained were analyzed using descriptive statistics. Descriptive statistics were employed to summarize the collected data and to calculate trends without generalizing the results to a broader population. The results were presented in tables and charts, which illustrated the percentage of students who used gadgets for more than two hours and their social development scores. To examine the relationship between gadget use and social development, linear regression analysis was performed, with the Spearman correlation test also used to assess the strength and direction of the relationship. Both analyses were conducted using the SPSS program.

Qualitative data obtained from interviews and observations were analyzed descriptively. The interview transcripts and observational notes were reviewed to ensure the accuracy and relevance of the data. To minimize irrelevant information and ensure data validity, a triangulation process was used, drawing on multiple sources and perspectives, including the students, parents, and teachers. This process enhanced the reliability and validity of the data, ensuring that the findings accurately reflect the participants' experiences and behaviors (Ary, D., Jacobs, L. C., Sorensen, C., & Razavieh, 2006).

RESULTS AND DISCUSSION

Result

The use and utilization of gadgets also plays a significant role in children's daily lives. The impact of gadget use on elementary school children, when used as a medium for learning and games, can affect various aspects of development, including social development and language development. The following section presents the results of the study, which examines the impact of gadget use on the social development of elementary school students across four schools: SDN Pondok Labu, SD Charitas, SDN Gambir, and SD Strada. It is important to note that the data presented in the tables below represent a small subset of the total sample (16 students selected for qualitative analysis), which is part of the larger sample of 481 students involved in the study.

Table 1. Data on the Impact of Gadget Use on the Social Development of Grade II Elementary School Students

Nu.	Name	Intensity of device use	Social development
1	Am	4	3
2	Al	3	3
3	D	3	4
4	C	4	2
5	H	4	2
6	N	3	4
7	L	3	4
8	Ci	4	2

Based on the regression analysis, the significance value (Sig.) of 0.005 is smaller than the probability threshold of 0.05, indicating a significant impact between the use of gadgets and the social development of grade II elementary school students.

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Table 2. Data on the Impact of Gadget Use on the Social Development of Grade V Elementary School Students

Nu.	Name	Intensity of device use	Social development
1	F	4	3
2	N	3	4
3	J	4	1
4	V	4	1
5	M	4	3
6	K	3	4
7	P	3	3
8	Ka	4	1

The regression analysis for grade V students also shows a significant result (Sig. = 0.037), which is smaller than the threshold of 0.05, confirming the impact of gadget use on the social development of grade V elementary school students.

Table 3. Data on the Impact of Gadget Use on the Social and Language Development of All Elementary School Students

Nu.	Name	Intensity of device use	Social development
1	Am	4	3
2	Al	3	3
3	D	3	4
4	C	4	2
5	H	4	2
6	N	3	4
7	L	3	4
8	Ci	4	2
9	F	4	3
10	N	3	4
11	J	4	1
12	V	4	1
13	M	4	3
14	K	3	4
15	P	3	3
16	Ka	4	1

The regression analysis for all students reveals a highly significant impact with a significance value (Sig. = 0.000), which is smaller than the probability of 0.05, further confirming that gadget use has a significant impact on the social development of elementary school students.

Discussion

The results of the study indicate a clear relationship between the use of gadgets and the social development of elementary school students. As shown in the regression analysis, both grade II and grade V students demonstrated measurable impacts on their social development as a result of their gadget use. For example, grade II students, who generally exhibited higher gadget use (over 2 hours per day), showed varying degrees of social engagement, with some demonstrating higher social development scores despite heavy gadget use. In contrast, grade V students, who had more balanced gadget use (less than 2 hours per day), showed more consistent social development scores, suggesting that the intensity of gadget use may correlate with the quality of social interactions. The regression results with p = 0.000 further reinforce that gadget use significantly impacts the students' social development, indicating a strong, reliable relationship.

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However, the qualitative findings add depth to this quantitative result by showing that despite the significant impact of gadget use, students "remain capable of socializing." This suggests that gadgets are not entirely detrimental to social development, but rather, they might be changing the way children interact with each other. For instance, students are still able to maintain friendships and understand emotional cues, as reflected in their ability to empathize with their peers and maintain meaningful connections. This is particularly true in shared activities such as playing games or interacting through social media, which allows students to stay in touch with each other despite physical distances. One student in grade II noted, “I feel closer to my friends because we play games together on our gadgets," highlighting that gadgets can facilitate social bonding in ways that were not possible in the past.

Leadership and Social Development

It is important to note that the use of gadgets among elementary school students does not solely have negative impacts. The findings show that while excessive use of gadgets can lead to isolation, gadgets also provide new avenues for students to engage socially. This is particularly evident in their ability to understand the emotional states of their friends, maintain friendships, and support the well-being of others. For example, grade II students who used gadgets intensively still displayed social engagement, albeit with some challenges in balancing online and offline interactions. This suggests that while gadgets might be changing the dynamics of social development, they do not necessarily hinder the development of social competencies if used properly.

In contrast, students who engage in educational activities through gadgets—such as using apps for learning or communication—demonstrated better social interaction skills, as they were able to communicate more effectively and recognize emotions. These social skills suggest that while gadgets may be a source of distraction, they also offer opportunities for enhancing social interaction through shared activities like games and communication tools.

Contextual Differences

The study reveals that the impact of gadget use on social development varies depending on the context, including grade level and school environment. As indicated by the regression analysis, both grade II and grade V students exhibited significant impacts from gadget use, but the nature and extent of these impacts differed. In grade II, students who used gadgets for more than 2 hours per day demonstrated a slight reduction in social development scores, with some students reporting feelings of isolation when they were unable to use their gadgets. On the other hand, grade V students, who typically used gadgets less frequently, maintained better social development scores, suggesting that moderate gadget use may have less of a disruptive impact on social behaviors.

When comparing students from different schools, the data shows how the role of gadgets in the school environment shapes their social outcomes. Students from SDN Pondok Labu, who were exposed to digital learning tools as part of their curriculum, had higher scores in social interaction and empathy. In contrast, students from SD Charitas, where gadget use was more limited to recreational activities, showed a slight decrease in their ability to maintain friendships. A quote from a grade V student at SD Charitas illustrates this difference: "I only use my gadget to watch videos, so sometimes I don’t know how to talk to my friends." This suggests that the way gadgets are integrated into

p-ISSN : 2721-852X ; e-ISSN : 2721-7965
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the school environment—whether for educational purposes or entertainment—may significantly influence their role in social development.

Community and Teacher Support

The findings further emphasize the importance of community involvement and teacher support in guiding children's gadget use. As noted from the interviews with teachers and parents, students who were provided with guidance on how to use gadgets for educational purposes, rather than just recreational activities, showed better social outcomes. One parent noted, "I encourage my child to use gadgets for educational games, and I see that he's more confident when talking to his friends about what he learned." This reinforces the idea that the context such as school culture and family environment can influence the outcomes of gadget use. In schools where teachers implemented structured gadget use for educational purposes, students tended to have more balanced social interactions compared to those in schools where gadgets were primarily used for leisure.

Limitations and Further Considerations

While the study provides valuable insights, it is important to consider the limitations of relying on secondary data, as well as the absence of a longitudinal perspective. Future research could explore these effects over a longer period to better understand how consistent gadget use influences long-term social development. Moreover, examining the role of parental guidance and peer relationships in shaping these outcomes would contribute to a more nuanced understanding of the complex relationship between gadget use and social development. For example, future studies could track the long-term effects of different types of gadget use across various school environments, considering variables such as peer influence and parental involvement. Additionally, the qualitative findings suggest that while gadgets can change the nature of social development, they do not replace face-to-face interactions entirely, highlighting the need for future research to explore how to balance both virtual and real-world socialization.

CONCLUSION

Fundamental Finding: This study found that the use of gadgets has a significant impact on the social development of elementary school students. The results of regression analysis (Sig. = 0.000) indicate that gadget usage, both at home and in school, affects students' social competence. Despite the potential for negative consequences, such as using gadgets as substitutes for social interaction during moments of solitude, students remain capable of understanding emotional states, maintaining friendships, and supporting their peers' well-being. Grade V students exhibited broader social networks and used a wider range of gadgets for learning and interacting with peers, in contrast to Grade II students, who showed more selfish behaviors and a preference for solitary gadget use. **Implication**: The findings suggest that while gadgets can contribute positively to the social development of students, especially in terms of emotional understanding and peer relationships, excessive or solitary gadget use may lead to social isolation and emotional difficulties. These implications highlight the importance of balancing gadget use with appropriate guidance and social interaction opportunities in both home and school environments. Educators and parents should promote the use of gadgets as tools for learning and social engagement rather than mere entertainment, especially for younger students. **Limitation**: This study's findings are based on cross-

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sectional data, which limits the ability to draw conclusions about the long-term effects of gadget use on social development. The cross-sectional design does not allow for tracking changes over time or assessing causal relationships. Furthermore, while the study employed a mixed-methods approach, the sample size for the qualitative phase was limited to 16 students, which may not fully capture the diversity of student experiences. Although quantitative data provided valuable insights, generalizability of the results may be constrained due to the limited number of schools and students involved, which were from specific regions in Jakarta. Future studies should aim for a larger, more diverse sample to enhance the external validity of the findings. **Future Research**: Future research should explore the long-term effects of gadget use on children's social development through longitudinal studies. Additionally, research could investigate the role of parental involvement and family dynamics in shaping children's attitudes toward gadgets and socialization. Exploring the cultural and socio-economic differences in gadget use and its impact on social development would also be valuable for understanding how contextual factors influence these outcomes. Finally, further studies could examine the potential emotional consequences, such as anxiety or depression, associated with excessive gadget use, particularly in children from different backgrounds.

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p-ISSN : 2721-852X ; e-ISSN : 2721-7965
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