

## Meta-Analysis the Impact of Technological Advancements on Social Interaction in the Digital Era

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**Received:**

August 10, 2024

**Revised:**

October 15, 2024

**Accepted:**

November 28,  
2024

**Published:**

November 30,  
2024

### ABSTRACT

This study aims to analyze the impact of technological advancements on social interactions in the digital era. Using the meta-analysis method, data were collected from 15 relevant journals through a Google Scholar search. The findings reveal that technological advancements, particularly the use of gadgets and social media, have positive impacts, such as expanding social networks and facilitating communication. However, negative impacts were also identified, including a decline in the quality of social relationships due to reduced face-to-face interactions, increased social isolation, and various health issues. This study provides recommendations for the wise use of technology, such as through digital education and limiting gadget usage, to balance the benefits of technology with the quality of social relationships.

**Keywords:** *technological advancements; social interaction; digital era.*

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## INTRODUCTION

In the modern era, technological advancements have developed rapidly in line with the evolution of time. Technology has almost dominated all aspects of human life. This progress occurs alongside the advancement of knowledge influenced by the era of globalization. Technology continues to emerge in various forms and features, with innovations evolving daily (Afriani & Yuliana, 2022).

Before the advent of communication technology, humans interacted directly without the use of electronic devices. Technology has been introduced to simplify human life. In their daily lives, humans depend on one another, expand their knowledge, and build relationships and cooperation to achieve common goals (Safitri, 2020). Today, smartphones or gadgets, social media, online games, instant messaging applications, and other platforms have become integral parts of society's life (Rompas et al., 2023).

A gadget is a small electronic device used as a modern communication tool with specific functions. Its presence has significantly advanced communication activities, making the communication process more accessible for humans (Gunawan et al., 2023). As social beings, we cannot separate ourselves from communication activities,

whether delivering or receiving messages from others. This communication process occurs continuously (Suryadi et al., 2021). The development of technology, such as gadgets, has brought positive impacts, especially in facilitating access to information, speeding up task completion, and simplifying the management of information across various fields such as economics. The issue addressed in this research stems from the rapid technological advancements that have significantly altered the course of human life. While it offers many benefits, its impact is not always positive. One prominent negative effect is the change in communication patterns (Rohana & Hartini, 2020). Society now communicates more frequently through text messages than through direct face-to-face interactions, which reduces the quality of social relationships (Ginting et al., 2024). Additionally, excessive dependence on technology has led to a decline in the frequency of social interactions, with some individuals even isolating themselves and preferring the digital world over the real world (Utami & Nurhayati, 2019).

Other impacts of technology are evident in health, such as sleep disorders, decreased brain function, and eye health problems. Children also spend less time playing outdoors with friends, as they prefer to spend time with gadgets (Afdalia & Gani, 2023; Munisa, 2020; Toni Nasution et al., 2022). If this habit continues, it could threaten their social development and physical health (Berliana et al., 2022). This demonstrates that while technological advancements are beneficial, they also demand serious attention to their negative effects.

Solutions to these issues include raising public awareness about balanced technology usage through educational campaigns and early digital education. Additionally, implementing time-management strategies, such as using time reminders and establishing gadget-free zones at home, can help reduce dependence (Anggraeni et al., 2022). To encourage social interaction, communities can promote participation in group activities, while families can design shared activities that do not involve gadgets. In terms of health, it is essential to promote healthy lifestyles, limit children's screen time, and encourage physical activities.

This issue is considered problematic due to its significant impact on society's social life. One major consequence is the decline in the quality of social relationships, with direct social interactions increasingly replaced by digital communication. Moreover, dependence on technology often leads individuals to isolate themselves, increasing the risk of loneliness, depression, and mental health issues. This dependency also affects productivity patterns. All these factors highlight the need to manage the negative impacts of technological advancements wisely to maintain balance in personal and social life.

Based on the aforementioned description, this research focuses on summarizing existing findings to provide further clarity on how technological advancements affect social interactions overall. The study aims to understand and analyze the influence of technological progress on social interaction, both positive and negative, by identifying changes in interaction patterns within society due to technology use and explaining

how technological dependence impacts the quality of social relationships. The researchers hope this article will offer useful recommendations for managing technology use wisely, enabling society to maximize its benefits without sacrificing the quality of social relationships.

One relevant study for this research is the journal article titled "Pengaruh Teknologi Komunikasi Terhadap Interaksi Sosial Di Era Digital" ("The Impact of Communication Technology on Social Interaction in the Digital Era") by Tasya Fajriah and Eka Resti Ningsih. This study employed a qualitative method. The journal focuses on the complexity of the influence of communication technology. The findings indicate that advancements in information technology not only strengthen global connectivity but also have significant material impacts, creating new dimensions in human life (Fajriah & Ningsih, 2024).

Another journal article titled "Pengaruh Penggunaan Gadget Terhadap Kemampuan Interaksi Sosial Siswa Sekolah Dasar" ("The Impact of Gadget Use on the Social Interaction Ability of Elementary School Students") by Yohana R. U. Sianturi utilized a quantitative descriptive research method and literature review. The research focused on elementary school students, with subjects from specific grades. Their social interaction abilities were assessed using descriptive observation sheets. The study revealed that gadget use negatively affects students' social interactions. High gadget usage intensity and engagement in the virtual world influence how children perceive and interact with the world outside of that environment (Sianturi, 2021).

## METHOD

The research method employed is meta-analysis, which involves reviewing a collection of documents with similar research themes. Data was gathered by searching Google Scholar from 2019 to 2024 using keywords such as technological advancements, gadgets, and social interactions. Data collection was conducted through documentation of 15 journals. The research instruments were determined by the researchers based on the study objectives. Articles were selected based on criteria including relevance to the theme, methodological quality, and contributions to understanding the relationship between technology and social interaction. Data analysis was conducted qualitatively and descriptively.

## RESULT AND DISCUSSION

Table 1. The results of the meta-analysis research are presented

No	Title	Research (Year)	Research Results
1	Analisis Penggunaan Gadget Terhadap Interaksi Sosial Mahasiswa	Afriani, D., & Yuliana, K. (2022) (Afriani & Yuliana, 2022)	The research findings indicate that students have diverse types and durations of gadget use. In general, their gadget usage behavior is still positive, primarily for accessing social media, learning, entertainment, and

			online business, with the main benefit being the ease of obtaining academic information. Most students also continue to prefer direct communication and demonstrate a relatively good level of environmental awareness.
2	Game Online Dan Pengaruh Interaksi Sosial Di Kalangan Mahasiswa Univeristas Muhammadiyah Surakarta	Safitri, S. S. (2020) (Safitri, 2020)	The research findings show that online games have varying impacts on students' social interactions, both positive and negative. Based on a diagram from Google Forms, the majority of students perceive the positive impacts of online games, particularly as a means to reduce boredom during leisure time while engaging in enjoyable remote interactions through gameplay.
3	Pengaruh Game Online Terhadap Interaksi Sosial Di Kalangan Mahasiswa Fakultas Ilmu Sosial Dan Politik Universitas Sam Ratulangi(Rompas et al., 2023)	Rompas, Y. F., Zakarias, J. D., & Kawung, E. J. R. (2023) (Rompas et al., 2023)	The research indicates that the measurement tools used are valid and reliable. The collected data follows a normal distribution, with no issues affecting the accuracy of the analysis results. The findings show that online games influence students' social interactions by 25.2%, while the remaining percentage is influenced by other factors beyond the scope of this study. This indicates that online games play a role in shaping students' social interactions, although many other factors also contribute.
4	Pengaruh Penggunaan Gadget Terhadap Interaksi Sosial Anak Usia Dini	Gunawan, A. P., Munawar, H. N., & Zakiya, S. L. D. (2023) (Gunawan et al., 2023)	The study results show that 92% of children own gadgets, and 76% of those whose usage is limited to 1–2 hours per day experience positive benefits, such as increased confidence in speaking, closer family bonds, and active interaction with peers. Conversely, 22% of children who frequently use gadgets before bedtime experience negative effects, such as

			low self-confidence, minimal interaction with parents, and limited outdoor playtime. This can hinder their social development.
5	Penggunaan Handphone Pada Remaja Terhadap Interaksi Sosial	Suryadi, A., Ranchman, G. A., Amelia, R. P., & Rahayu, T. C. (2021) (Suryadi et al., 2021)	In this study, 96% of respondents agreed that mobile phones are essential, but 88% also recommended limiting their use to prevent negative effects such as headaches and eye strain. The respondents' average daily usage reached 8 hours, with 40% using them for even longer. Although 52% felt that mobile phones simplify activities, there is concern about addiction, particularly among children, which has become a key point of debate in this research.
6	Hubungan Penggunaan Gadget Dengan Interaksi Sosial Anak Usia Sekolah di Sdn 02 Banyuurip Kecamatan Margorejo Kabupaten Pati	Rohana, F., & Hartini, S. (2020) (Rohana & Hartini, 2020)	This study shows that gadget usage is associated with the sleep quality of school-age children at Madrasah Ibtidaiyah Raudlatut Thalibin, Jepara. The majority of respondents were 11 years old (53.8%), with 59.0% being female and most of them being fifth-grade students (59.0%). A total of 59.0% of respondents fell into the high gadget usage category. Additionally, social interaction occurred in the majority of students (53.8%), while the remaining 46.2% did not experience social interaction.
7	Analisis Pengaruh Jejaring Sosial Terhadap Interaksi Sosial di Era Digital	Ginting, D. C. A., Rezeki, S. gusti, Siregar, A. A., & Nurbaiti. (2024) (Ginting et al., 2024)	The research findings indicate that social interaction in the digital era is heavily influenced by social media platforms such as Facebook, Instagram, and Twitter, which facilitate communication, information sharing, and online collaboration. Social media enables individuals to actively participate, build global networks, and exchange ideas without geographical barriers. However, its impact is also significant, including changes in

			societal behavior, such as a tendency to reduce face-to-face interactions and an increasing dependence on digital devices.
8	Kecanduan Internet Berhubungan Dengan Interaksi Sosial Remaja	Utami, T. W., & Nurhayati, F. (2019) (Utami & Nurhayati, 2019)	This study shows that the majority of adolescent internet users are male (52.3%), with an average usage of more than six hours per day, primarily for social media (79.3%). More than half of the adolescents (53%) experience moderate levels of internet addiction, which negatively impacts their health, education, and social interactions. Good social interaction was observed in 79.3% of adolescents, but the 20.7% with poor social interaction require attention.
9	Dampak Pengaruh Gadget Terhadap Interaksi Sosial Anak Usia Dini	Afdalia, A. P., & Gani, I. (2023) (Afdalia & Gani, 2023)	The research findings indicate that gadget use among young children has both positive and negative aspects. Positive impacts include enhanced creativity, increased self-confidence, early exposure to technology, and assisting parents with daily tasks. However, the negative effects are more dominant, such as addiction, health problems, lack of social interaction, and antisocial behavior. Children are also vulnerable to exposure to inappropriate content, reduced physical activity, and heightened stress or anger when gadget usage is restricted. Parenting styles, peer relationships, and online learning, especially during the pandemic, are factors influencing gadget use.
10	Pengaruh Penggunaan Gadget Terhadap Interaksi Sosial Anak Usia Dini Di	Munisa. (2020) (Munisa, 2020)	The regression analysis results show that gadget use has a negative impact on the social interaction of early childhood students at TK Panca Budi Medan, with a coefficient value of R

TK Panca Budi  
Medan

= 0.773 and  $p < 0.05$ . The more frequently children use gadgets, the lower their level of social interaction. This study reveals that 59.7% of the relationship between gadget use and children's social interaction is influenced by excessive gadget usage, where children tend to focus more on gaming applications than interacting with family or peers.

11	Pengaruh Penggunaan Gadget Terhadap Kemampuan Interaksi Sosial Pada Anak Usia Dini	Toni Nasution, Erli ariani, & Murni emayanti. (2022) (Toni Nasution et al., 2022)	This study identifies several key factors that influence social interaction, including the presence of more than one individual engaging in mutual behavior, the use of symbols in communication, the dimension of time encompassing the past, present, and future, as well as the existence of a goal to be achieved. In the modern context, communication technology also affects patterns of social interaction. Technology enables long-distance relationships but tends to reduce the frequency of face-to-face meetings.
12	Pengaruh Penggunaan Gadget Terhadap Interaksi Sosial Anak Usia 5-6 Tahun	Berliana, D., Rosidah, L., & Sayekti, T. (2022) (Berliana et al., 2022)	The study found that children aged 5-6 years at TKIT AlMuhajirin are already using gadgets, with some of them being provided with gadgets by their parents. On average, these children use gadgets for more than 2 hours per day, indicating that gadget use exceeding 2 hours per day can lead to behavioral changes in children. Other impacts include increased anger, imitation of behaviors from gadgets, and talking to themselves. Gadget use also affects children's discipline, causing them to become lazy, reduce study time, and spend more time playing games or watching YouTube.
13	Pengaruh Kemajuan	Anggraeni, P. N., Syafa Herdiani, Tin	The study reveals that technological advancements, especially the internet,

	Teknologi Komunikasi Terhadap Perkembangan Sosial Anak	Rustini, & Muh. Husen Arifin. (2022) (Anggraeni et al., 2022)	have a significant impact on children's social behavior. On one hand, technology facilitates access to information, enhances creativity, and supports learning. On the other hand, without proper supervision, technology can lead to negative effects such as addiction, lack of social skills, and the influence of foreign cultures that may not align with societal norms. Parents play an essential role in guiding children to use technology wisely, through age-appropriate introductions, limiting access, and using an educational approach.
14	Pengaruh Teknologi Komunikasi Terhadap Interaksi Sosial Di Era Digital	Fajriah, T., & Ningsih, E. R. (2024) (Fajriah & Ningsih, 2024)	The study reveals that technological advancements have transformed social interaction patterns from face-to-face to digital through social media. Platforms like Instagram and Twitter enable communication without geographical boundaries, facilitating long-distance relationships and building communities based on shared interests. These interactions create two dimensions: the real world, which involves direct contact, and the virtual world, which is flexible without physical presence. Communication technology makes social connections easier but also presents new challenges in building relationships in the digital era.
15	Pengaruh Penggunaan Gadget Terhadap Kemampuan Interaksi Sosial Siswa Sekolah Dasar	Sianturi, Y. R. U. (2021) (Sianturi, 2021)	The study reveals that parents often give gadgets to elementary school children based on the child's request, with the intention of introducing technology at an early age or alleviating boredom. Additionally, gadgets are frequently used as a tool to keep children busy and prevent them from disturbing their parents'



activities. Some parents also believe that gadgets can help children expand their social interactions through social media.

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Based on data from existing journals, the discussion on the impact of technological advancements on social interaction in the digital era reveals that the development of technology, particularly gadgets and social media, has a significant influence on social interaction patterns in the digital age. This technology facilitates long-distance communication, expands social networks, and provides quick access to information and learning. However, its negative impacts are also felt, such as a decrease in face-to-face interactions, gadget addiction, and negative changes in social behavior, especially among children and adolescents.

Parents often give gadgets to their children for various reasons, such as fulfilling the child's request, introducing technology at an early age, or keeping the child busy to avoid interrupting their own activities. While gadgets can help expand social networks through social media, uncontrolled usage can lower the quality of direct interaction and trigger antisocial behavior.

Technological advancements also present two worlds: the real world and the virtual world, which complement each other but come with their own challenges. To reduce the negative impacts, parents need to guide the use of technology wisely, including limiting screen time and ensuring age-appropriate content access. This step is necessary to ensure that technology is used to support children's creativity and social skills optimally.

## **CONCLUSION**

This study concludes that technological advancements have both positive and negative impacts on social interactions. The positive impacts include easier access to information and the expansion of social connections, while the negative impacts involve a decline in face-to-face interactions, social isolation, and health issues. Therefore, a wise approach to the use of technology is necessary, including digital education and restrictions on gadget use, to maximize the benefits of technology without sacrificing the quality of social relationships. This study also recommends further research to explore effective solutions for managing the influence of technology in various social contexts.

## **REFERENCES**

- Afdalia, A. P., & Gani, I. (2023). Dampak Pengaruh Gadget Terhadap Interaksi Sosial Anak Usia Dini. *Al-Irsyad Al-Nafs: Jurnal Bimbingan Penyuluhan Islam*, 10(1), 87–96. <https://doi.org/10.24252/al-irsyad%20al-nafs.v10i1.41022>

- Afriani, D., & Yuliana, K. (2022). Analisis Penggunaan Gadget Terhadap Interaksi Sosial Mahasiswa. *LENTERA: Jurnal Ilmiah Kependidikan*, 17(1), 9–19. <https://doi.org/10.33654/jpl.v17i1.1798>
- Anggraeni, P. N., Syafa Herdiani, Tin Rustini, & Muh. Husen Arifin. (2022). Pengaruh Kemajuan Teknologi Komunikasi Terhadap Perkembangan Sosial Anak. *JPIPS: Journal Pendidikan Ilmu Pengetahuan Sosial*, 14(1), 144–147. <https://doi.org/10.37304/jpips.v14i1.4743>
- Berliana, D., Rosidah, L., & Sayekti, T. (2022). Pengaruh Penggunaan Gadget Terhadap Interaksi Sosial Anak Usia 5-6 Tahun. *KIDDO: Jurnal Pendidikan Islam Anak Usia Dini*, 3(1), 23–37.
- Fajriah, T., & Ningsih, E. R. (2024). Pengaruh Teknologi Komunikasi Terhadap Interaksi Sosial Di Era Digital. *MIJI:Merdeka Indonesia Journal International*, 4(1), 149–158.
- Ginting, D. C. A., Rezeki, S. gusti, Siregar, A. A., & Nurbaiti. (2024). Analisis Pengaruh Jejaring Sosial Terhadap Interaksi Sosial di Era Digital. *PPIMAN: Pusat Publikasi Ilmu Manajemen*, 2(1), 22–29. <https://doi.org/10.59603/ppiman.v2i1.280>
- Gunawan, A. P., Munawar, H. N., & Zakiya, S. L. D. (2023). Pengaruh Penggunaan Gadget Terhadap Interaksi Sosial Anak Usia Dini. *Jurnal Ekonomi Manajemen Dan Bisnis*, 1(2), 202–210. <https://doi.org/10.62017/jemb>
- Munisa. (2020). Pengaruh Penggunaan Gadget Terhadap Interaksi Sosial Anak Usia Dini Di TK Panca Budi Medan. *Jurnal Ilmiah Abdi Ilmu*, 13(1), 102–114.
- Rohana, F., & Hartini, S. (2020). Hubungan Penggunaan Gadget Dengan Interaksi Sosial Anak Usia Sekolah di Sdn 02 Banyuurip Kecamatan Margorejo

Kabupaten Pati. *CENDEKIA UTAMA: Jurnal Keperawatan Dan Kesehatan Masyarakat*, 9(2), 137–145.

Rompas, Y. F., Zakarias, J. D., & Kawung, E. J. R. (2023). Pengaruh Game Online Terhadap Interaksi Sosial Di Kalangan Mahasiswa Fakultas Ilmu Sosial Dan Politik Universitas Sam Ratulangi. *Jurnal Ilmiah Society*, 3(1), 1–11.

Safitri, S. S. (2020). Game Online Dan Pengaruh Interaksi Sosial Di Kalangan Mahasiswa Univeristas Muhammadiyah Surakarta. *Edumaspul: Jurnal Pendidikan*, 4(1), 364–376.

Sianturi, Y. R. U. (2021). Pengaruh Penggunaan Gadget Terhadap Kemampuan Interaksi Sosial Siswa Sekolah Dasar. *Jurnal Kewarganegaraan*, 5(1), 276–284.

Suryadi, A., Ranchman, G. A., Amelia, R. P., & Rahayu, T. C. (2021). Penggunaan Handphone Pada Remaja Terhadap Interaksi Sosial. *CEBONG Journal*, 1(1), 15–19.

Toni Nasution, Erli ariani, & Murni emayanti. (2022). Pengaruh Penggunaan Gadget Terhadap Kemampuan Interaksi Sosial Pada Anak Usia Dini. *Journal of Science and Social Research*, 5(3), 588–594.

Utami, T. W., & Nurhayati, F. (2019). Kecanduan Internet Berhubungan Dengan Interaksi Sosial Remaja. *FIKKes:Jurnal Keperawatan Jiwa*, 7(1), 33–38.