The relationship between screen time on daily devices and emotional intelligence capabilities on adolescents

by Syahgita Zaki Ghiffari

The Relationship Between Screen Time on Daily Devices and Emotional Intelligence Capabilities on Adolescents

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Abstract.

Emotional intelligence (EI) is an essential skill to have during adolescence, which is a crucial phase in the formation of emotional regulation. As the use of digital devices increases in daily life, screen time can be a factor that potentially influences adolescent emotional development. The purpose of this study was to find the relationship between screen time on daily devices and emotional intelligence abilities in adolescents. This cross-sectional study was conduct between October and December 2025 at Al Izhar Senior High School, Pondok Labu. A total of 90 respondents were selected using a consecutive non-random sampling method. Data collected included age, gender, daily device use, and family factors such as family gatherings, family attendance, and parents' highest education level, as well as screen time and EI. EI was determined by the Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF) questionnaire. Fisher's exact test was used in data analysis. The results showed that 76 (84.4%) respondents were aged ≥ 17 years, while 47 (52.2%) were female, most of the respondents 80 (88.9%) chose smartphones as their frequently used daily devices, most or 50 (55.6%) respondents gathered ≥ 5 times per week with family, almost all 86 (95.6%) respondents revealed family attendance at important events, and as many as 48 (53.3%) of the respondents' parents had a bachelor's/bachelor's degree, 78 (86.7%) respondents used their daily devices for > 2 hours, and the respondents' EI level was dominated by the high category, namely 73 (81.1%). The analysis showed a significant relationship between screen time on daily devices and EI levels in adolescents (p = 0.046). Family interventions related to adolescents screen time should be strenghten.

Keywords: Emotional intelligence; screen time; adolescent; family

I. INTRODUCTION

Emotional intelligence (EI) can be described as a person capacity to perceive, interpret, express, and regulate emotions, this ability begins to develop in childhood and continues to mature throughout adolescence [1], [2]. During adolescence, EI plays a crucial role in psychosocial development, including academic achievement, psychological well-being, and stress management [3]–[5] . Adolescents with higher levels of EI tend to exhibit better social relationships, more effective coping strategies, and a more optimal quality of life [3].

The prevalence of low EI among adolescents remains a concern. Studies conducted in Sri Lanka reported that approximately 50.6% of adolescents had low EI [6], whereas in Indonesia, the prevalence was reported to be lower, at approximately 13% [7]. Despite this difference, low EI still poses a risk for long-term negative outcomes, including increased vulnerability to psychological distress, depression, and maladaptive behaviors during adolescence [3].

The development of EI is influenced by various individual and environmental factors, one of which is exposure to screen time [8],[9]. The World Health Organization (WHO) defines screen time as the amount of time spent interacting with screens, primarily for passive entertainment [10]. With the increasing integration of digital devices into daily life, they may contribute to reduced physical activity among adolescents, which can increase the risk of anxiety [11], therefore the American Academy of Pediatrics recommends limiting adolescents' screen time to no more than two hours per day [12].

Several studies have reported that excessive screen time is associated with lower levels of emotional intelligence and an increased risk of mental health problems [13]–[15]. However, other studies have found no significant relationship between screen time and EI among adolescents [16], [17]. This inconsistency in the

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existing literature highlights a research gap that warrants further investigation, particularly within the Indonesian adolescent population.

Therefore, this study aims to examine the relationship between emotional intelligence and screen time among adolescents in order to provide a more comprehensive understanding of this association. The findings are expected to serve as a reference for parents, educators, and policymakers in supporting adolescents' emotional development and academic outcomes.

II. METHODS

Research Method

This study adopted a cross-sectional design and was carried out at a private Senior High School in South Jakarta between October – December 2025. The study population consisted of 90 participants in grade XII who met the specified eligibility criteria. Sampling was conducted using a consecutive non-random sampling approach. Requirements for inclusion in the study are adolescents aged 16-18 years old, actively use daily device, active students in the relevant high school, and willing to participate completely and honestly. The exclusion criteria were adolescents who are undergoing psychological intervention therapy, and adolescents with mental disorder such as autism spectrum disorder.

The sample size was calculated using formulas for both (1) infinite (unknown) and (2) finite (known) populations:

$$n_0 = \frac{(Za^2) \times p \times q}{d^2}$$

Where n0 refers to estimated optimal sample size; $Z\alpha$ = 1.96; is the prevalence of low emotional intelligence level in Indonesia (0.13); and $q = 1 - p$ = (0.87). The margin of error was set at 5%, resulting in an n0 of 174.

$$n = \frac{n_0}{1 + (n_0 / N)}$$

A total of 130 students were identified at the data collection; thus, N = 130. Using formula (2), with an additional 15% for potential dropouts, the final required sample size was 85.

Data on age, sex, device use, screen time, family meetings, family presence at important events, and parental educational level were obtained through students' self-reported questionnaires. Age was categorized as $\geq$ 17 years and < 17 years. Sex was categorized as male and female. Device use was classified into smartphone, tablet, laptop, and tv. Screen time was categorized into $\leq$ 2 hours and > 2 hours per day, based on the American Academy of Pediatrics guidelines [12]. Family presence at important events was categorized as present or absent. Parental educational level was classified as senior high school, bachelor's, master's, and PhD. This study used the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF), which had been validated for the Indonesian Language as an instrument for measuring participants' emotional intelligence [18]. This instrument comprises 30 items rated on a 7 - point likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), reflecting how well each statement describes the respondent. Descriptive statistics were used to summarize participants' characteristics, while inferential statistics, specifically Fisher's exact test, were applied to test the research hypotheses. A significance level of $P < 0.05$ was adopted. The collected data were processed using IBM SPSS Statistics version 31.

Ethical principles were strictly upheld, The Research Ethics Committee of the Faculty of Medicine, Universitas Trisakti, granted ethical approval for this study (099/KER/FK/09/2025). Informed consent was given to participants prior to data collection, and their anonymity and confidentiality were ensured throughout the study.

III. RESULT AND DISCUSSION

Table 1 shows the distribution of subjects charateristics. The majority of respondents were aged ≥ 17 years, comprising 76 (84.4%) students, and 47 (52.2%) were female. Smartphones were the most commonly used devices, reported by 80 (88.9%) students, with 78 (86.7%) indicating an average daily screen time exceeding 2 hours. A total of 50 (55.6%) students reported frequent family gatherings (≥ 5 times per week). Furthermore, family presence at events considered important by the students was notably high, with 86 (95.6%) reporting such attendance. Most students' parents had attained a bachelor's degree, accounting for 48 (53.3%). Overall, the majority of students demonstrated high levels of emotional intelligence, with 73 (81.1%) categorized in the high EI group.

Table 1. Distribution of subject characteristics

Variable	Frequency (n)	Percentage (%)
Age (year)		
≥ 17	76	84.4
< 17	14	15.6
Sex		
Men	43	47.8
Women	47	52.2
Device used		
Smartphone	80	88.9
Tablet	6	6.7
Laptop	2	2.2
TV	2	2.2
Screen time on device		
≤ 2 hours	12	13.3
> 2 hours	78	86.7
Family meetings		
≥ 5 times a week	50	55.6
< 5 times a week	40	44.4
Family presence on important event		
Presence	86	95.6
Absence	4	4.4
Parents level of education		
Senior High School	3	3.3
Bachelor	48	53.3
Master	33	36.7
PhD	6	6.7
Emotional Intelligence (EI)		
Low	17	18.9
High	73	81.1

Table 2 shows the relationship between screen time on daily devices and emotional intelligence among adolescents. Fisher's exact test was used for data analysis, with statistical significance defined as $p < 0.05$. Emotional intelligence was measured using the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) and categorized into low and high emotional intelligence based on the established scoring criteria of the instrument. Screen time was categorized into ≤ 2 hours and > 2 hours per day. Among students with screen time of more than 2 hours per day, a higher proportion had high emotional intelligence compared to those with screen time of 2 hours or less (84.6% vs. 58.3%). In contrast, students with screen time of 2 hours or less showed a higher proportion of low emotional intelligence compared to those with screen time exceeding 2 hours (41.7% vs. 15.4%). Statistical analysis indicated a significant association between screen time and emotional intelligence ($p = 0.046$).

Table 2. The relationship between screen time on daily devices and emotional intelligence capabilities on adolescents

Variable	Emotional Intelligence		P value
	Low, n(%)	High, n(%)	
Screen time on device			
≤ 2 hours	5 (41.7%)	7 (58.3%)	0,046*
> 2 hours	12 (15.4%)	66 (84.6%)	

The result of our study found a high emotional intelligence observed among participants in private senior high school in Indonesia, namely 81.1% (Table 1). The proportion of individuals with high emotional intelligence level was higher in this study than the studies conducted in India 62,5% [19], and Bangladesh 71.1% [20], but slightly lower than Iran 82,2% [21]. The result of this study indicate that the prevalence has reached an adequate level of emotional intelligence, reflecting promising advancement, yet there still remain a need for ongoing efforts to further improve this outcome.

The majority of participants in this study were in the ≥ 17 years age group, comprising 76 respondents (84.4%), which generally corresponds to the late adolescence to early adulthood phase. At this developmental stage, individuals tend to have broader social experiences, which may contribute to more advanced abilities in recognizing, understanding, and managing emotions. The findings of this study showed that among the 76 respondents aged ≥ 17 years, 61 (80.3%) exhibited high emotional intelligence (EI) scores. This result aligns with the results reported by Collardo-Soller et al., who reported that EI increases with age [22]. However, it contrasts with the study by Aragundi-Moncada et al., which found no significant differences in EI across different age groups [23]. As individuals grow older, they accumulate more life experiences and lessons, which may contribute to a more comprehensive development of emotional competencies across various domains.

With regard to sex, the findings of this study show that most participants were female, totaling 47 individuals (52.2%). Of these, 40 women (85.1%) demonstrated high levels of emotional intelligence. This pattern is frequently observed in emotional intelligence research, as women tend to report higher average EI scores than men [24]. This tendency may be explained by women's stronger capacity to perceive, process, and communicate emotions. However, contrasting evidence was reported by Rai et al., who found no significant gender differences in emotional intelligence. Their results further indicated that men achieved higher EI scores than women [25].

The most frequently used daily device among respondents in this study was the smartphone, reported by 80 students (88.9%), reflecting common technology usage patterns among contemporary adolescents. A study conducted by Rabbani et al. found no significant relationship between smartphone use and emotional intelligence (EI) [26]. Similarly, research conducted in Spain by Rodriguez et al. also reported no strong or consistent association between smartphone use and EI [27]. Smartphones, tablets, laptops, and televisions are described in the literature primarily as platforms for accessing content and communication. Within this context, variations in device preference are not accompanied by corresponding differences in emotional intelligence levels.

Family factors may play an important role in influencing an individual's emotional intelligence (EI). In this study, family interactions were relatively frequent, with 50 students (55.6%) reporting that they gathered with their families ≥ 5 times per week, among whom 40 students (80.0%) had high EI scores. In addition, 86 students (95.6%) reported that their families were present at events they considered important, including 72 students (83.72%) who had high EI scores. This proportion closely approximates the total number of students with high EI in this study, differing by only one individual. Furthermore, 48 students (53.3%) reported having parents with a bachelor's degree, of whom 39 students (81.25%) had high EI scores. Taken together, these findings describe a generally supportive and engaged family environment among most participants. These results are consistent with previous studies. Zhao et al. reported that better family functioning was positively correlated with children's EI scores [28]. Similarly, Alavi et al. found that strong emotional bonds among family members were positively associated with EI [29]. These findings highlight the relevance of family-related factors in emotional development. Martinez-Yara et al. further reported that families who are actively

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involved in their children's academic processes at home tend to foster better EI competencies [30]. Although the direct relationship between parental education level and EI remains less clearly established in the literature, parents with higher educational attainment are often associated with greater access to resources and support that may facilitate children's development. A positive, communicative, and emotionally responsive family environment has been frequently described as conducive to the development of emotional intelligence, which may be reflected in the frequency of family interactions and the level of parental involvement.

Based on the analysis results, it was found that there was a significant relationship between screen time on daily devices and EI in adolescents with results (p=0.046).These study results support the previous finding of Nugroho et al which found the significance relationship between screen time and emotional intelligence (p < 0.01) [9], and also the finding of study that conducted in Spain by Aranda et al. who also found that smartphone usage is correlates positively with emotional intelligence [13]. However, it is important to note that screen time is not necessarily directly proportional to an increase in an individual emotional intelligence (EI). Rather, the purpose and nature of screen use may be more relevant, whether it is for academic activities or entertainment. In this study, family-related factors also appeared to be associated with higher EI scores among students. Through daily interactions, communication patterns, and warm relationships, children may learn to manage and express their emotions in more constructive ways. A positive family environment also serves as an initial context in which children develop fundamental social skills. Given the widespread use of digital devices among adolescents, these results highlight the importance of monitoring screen time and promoting balanced digital habits by parents and teacher to support optimal emotional development.

This study has some limitations as follows: (1) screen time measurement were based solely on time and did not categorize screen time more specifically by activity type; (2) the use of questionnaire in this study can introduce bias because it relies on participants perception and honesty; (3) other factor than family may also potentially influence screen time and EI.

As societies become more democratized, the digitalization of daily activities has become inevitable consequence. Based on our study result, screen time has a significant effect to emotional intelligence of adolescents. These findings may provide a foundation for comprehensive intervention strategies for the use of screen time among adolescents, as outlined in Government Regulation (Peraturan Pemerintah) No. 17 of 2025 on the Governance of Electronic System Administration for Child Protection (PP TUNAS) regarding the safety for children in digital environment. Our study showed that it is essential for parents and teachers to pay greater attention to adolescents daily device usage patterns by providing appropriate guidance and education on responsible and effective use.

Further studies are still necessary to corroborate the findings in this study, as a more comprehensive assessment of screen time should also consider additional approaches, such as a more specific finding the type of activity of screen time use. This aspect may provide a more comprehensive understanding of emotional intelligence.

IV.   CONCLUSION

This study showed the significance relationship between screen time on daily devices and emotional intelligence capabilities on adolescents. Strategies are needed in the design of educational and intervention from parents, teacher, and the government to promote healthy digital habits and foster adolescents emotional development through appropriate guidance, supervision, and support.

REFERENCES.

[1]   L. M. Bru-Luna, M. Martí-Vilar, C. Merino-Soto, J. L. Cervera-Santiago, *Emotional intelligence measures: a systematic review*, **Healthcare**, 9(12), 2021, pp. 1696.

[2]   A. Drigas, C. Papoutsi, *Nine Layer Pyramid Model Questionnaire for Emotional Intelligence*, **International Journal of Online and Biomedical Engineering**, 17(7), 2021, pp. 123–142.

[3]   Z. Furqani, *The role of emotional intelligence in adolescent development*, **Journal of Social and Behavioral Sciences**, 277, 2020, pp. 277–280.

[4]   A. Quílez-Robres, P. Usán, R. Lozano-Blasco, C. Salavera, *Emotional intelligence and academic performance: a systematic review and meta-analysis*, **Thinking Skills and Creativity**, 49, 2023, pp. 100886.

[5]   T. Alvi, R. L. Nadakuditi, T. H. Alotaibi, A. Aisha, M. S. Ahmad, S. Ahmad, *Emotional intelligence and academic performance among medical students – a correlational study*, **European Review for Medical and Pharmacological Sciences**, 27(4), 2023, pp. 1230–1237.

[6]   M. S. Lankashini, V. G. D. Lakmali, S. A. K. Lenagala, A. L. R. P. Liyanage, C. Arambepola, *Level of emotional intelligence and its association with person-related characteristics among grade 8 students in a suburban setting*, **Ceylon Journal of Medical Science**, 54(1), 2017, pp. 27–35.

[7]   Z. M. Faradisi, D. Ingriani, L. Yuliani, L. Arista, *Pengaruh kecerdasan emosional terhadap prestasi akademik pada siswa SMK Kesehatan Prima Nusantara*, **Jurnal Pendidikan Kesehatan**, 5(1), 2019, pp. 45–52.

[8]   A. D'Amico, A. Geraci, *Sex differences in emotional and meta-emotional intelligence in pre-adolescents and adolescents*, **Acta Psychologica**, 227, 2022, pp. 103594.

[9]   J. P. A. Nugroho, Y. I. Suryanto, L. N. Nugraha, A. B. Prakoso, *The relationship between screen time and emotional quotient in medical students*, **Berkala Ilmiah Kedokteran Duta Wacana**, 8(2), 2023, pp. 81–86.

[10]   World Health Organization, *WHO guidelines on physical activity and sedentary behaviour*, **World Health Organization**, 2020, pp. 1–114.

[11]   Akbar UM, Yenny Y. Anxiety and its associated factors among school-aged adolescents in East Jakarta, Indonesia during the coronavirus disease-2019 pandemic. **Open Access Maced J Med Sci.** 2022 Apr 25; 10(B):1122-1128.

[12]   D. Hill, N. Ameenuddin, Y. R. Chassiakos, C. Cross, J. Radesky, J. Hutchinson, et al., *Media use in school-aged children and adolescents*, **Pediatrics**, 138(5), 2016, e20162592.

[13]   M. Aranda, M. García-Domingo, V. Fuentes, R. Linares, *Emotional intelligence and adult attachment: effects on problematic smartphone usage*, **Anales de Psicología**, 38(1), 2022, pp. 36–45.

[14]   R. M. S. Santos, S. de A. Ventura, Y. J. de A. Nogueira, C. G. Mendes, J. J. de Paula, D. M. Miranda, et al., *The associations between screen time and mental health in adults: a systematic review*, **Journal of Technology in Behavioral Science**, 9(1), 2024, pp. 1–21.

[15]   J. Gao, L. Gao, *A meta-analysis of prospective cohort studies on screen time and the risk of depression in adolescents*, **Acta Psychologica**, 251, 2024, pp. 103628.

[16]   D. N. S. Marchamah, A. Sudrajat, D. N. Rahmatika, *Use of gadgets with screen time on emotional intelligence in the digital era in middle adolescence (15–18 years)*, **J-Kesmas: Jurnal Fakultas Kesehatan Masyarakat**, 9(2), 2022, pp. 56–60.

[17]   R. L. Nabi, L. N. Wolfers, *Does digital media use harm children's emotional intelligence? A parental perspective*, **Media and Communication**, 10(1), 2022, pp. 350–360.

[18]   S. Kristanti, T. Febriana, *Adapting the Trait Emotional Intelligence Questionnaire Short Form (TEIQUE-SF) into Indonesian language and culture*, **Indonesian Journal of Psychology**, 10(4), 2021, pp. 578–603.

[19]   L. S. Devi, M. O. Joseph, M. S. Shantaram, *A study to assess emotional intelligence among late adolescents in selected colleges of Pune City*, **International Journal of Community Medicine and Public Health**, 45(2), 2024, pp. 3711–3716.

[20]   A. H. Mondal, *Prevalence and predictors of high emotional intelligence and its association with personality traits among university students*, **Journal of Educational Psychology and Counselling**, 2025, pp. 12–23.

[21]   O. Article, *Original Article*, **Journal of Applied Behavioral Studies**, 5(3), 2019, pp. 1–5.

[22]   R. Collado-Soler, *Emotional intelligence and resilience outcomes in adolescent period, is knowledge really strength?*, **Journal of Adolescent Psychological Research**, 2023, pp. 214–223.

[23]   J. G. Aragundi-Moncada, M. M. Bueno-Fernández, E. Espinoza-Solís, A. P. Guillén-Rodríguez, Á. Ramón, S. García, *The relationship between age and emotional intelligence in postgraduate students*, **International Journal of Educational Research**, 2025(7), pp. 1–11.

[24]   S. Jan, J. Manzoor, S. W. Hijaz, A. H. Baba, *Gender differences in emotional intelligence: a comparative analysis of male and female responses across key EI components*, **Journal of Behavioral Science Studies**, 12(1), 2025, pp. 93–97.

[25]   P. R. Rai, Y. Yaden, *A comparative study between male and female college students with regard to emotional intelligence of Nagaland*, **Global Journal of Human Social Science**, 31(4), 2019, pp. 37–42.

[26]   M. Learning, *The influence of smartphone use on the cognitive abilities and emotional intelligence of students at Pogung 2 State Elementary*, **Elementary Education Research Journal**, 2(1), 2025, pp. 1–5.

[27]   F. Manuel, R. M. Gim, P. Mingorance, L. P. Manuel, *Influence of smartphone use on emotional, cognitive, and*

educational dimensions in university students, **Journal of Educational Technology & Society**, 23, 2020, pp. 1–20.

[28] M. Zhao, N. Ba, *Behavioral sciences: the relationship between family functioning, emotional intelligence, loneliness, social support, and depressive symptoms among undergraduate students*, **Behavioral Sciences Journal**, 2024, pp. 55–68.

[29] M. Alavi, S. A. Mehrinezhad, M. Amini, M. Kaur, P. Singh, *Family functioning and trait emotional intelligence among youth*, **Journal of Youth Studies**, 2017, pp. 112–125.

[30] N. Martinez-Yarza, J. Solabarrieta-Eizaguirre, R. Santibáñez-Gruber, *The impact of family involvement on students' social-emotional development: the mediational role of school engagement*, **European Journal of Psychology of Education**, 39(4), 2024, pp. 4297–4327.

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