

 Research Article

The Influence of Smartphone Use on the Cognitive Abilities and Emotional Intelligence of Students at Pogung 2 State Elementary School

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Abstract

Smartphones have revolutionized communication and interaction, becoming essential, particularly for children and teens. However, there is a contradiction in their use among students. While smartphones hold significant potential as educational tools, the government has banned their use in elementary schools to safeguard children from potential negative effects. This study aims to analyze the impact of smartphone use on the cognitive abilities and emotional intelligence of students at Pogung 2 State Elementary School (SDN 2 Pogung). The research method employed is descriptive qualitative, focusing on 4th, 5th, and 6th-grade students. The research subjects were selected using purposive sampling, ensuring that the participants were representative of the target population in terms of smartphone usage habits and academic performance. Data were collected through observations, interviews, and questionnaires to measure the intensity of smartphone use and its relationship with students' cognitive abilities and emotional intelligence. The results of the study indicate that smartphone use among students ranges from 1 to 3 hours per day. However, this intensity of use does not show a significant impact on students' cognitive abilities or emotional intelligence. The primary factors influencing cognitive abilities and emotional intelligence are more determined by parental guidance, educators, and the students' surrounding environment. The conclusion of this study is that smartphone use does not have a direct impact on students' cognitive abilities and emotional intelligence. Therefore, it is recommended that further research be conducted to develop appropriate regulations regarding smartphone use for elementary school students, in order to maximize benefits and minimize potential negative impacts.

Keywords: Cognitive Abilities, Emotional Intelligence, Smartphone

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1. INTRODUCTION

Change is an inevitable aspect of human life and plays a significant role in societal evolution. According to Soekanto (1990), change occurs due to diversity and the desire to grow. Humans, unlike animals and plants, possess the ability to manage these changes with their intelligence, as explained by Khaldun (in Muslim, 2015). This capacity for adaptation allows societies to respond to various challenges, such as technological advancements, cultural shifts, and environmental changes, enabling them to progress and innovate.

In today's rapidly evolving digital landscape, smartphones have become ubiquitous tools that significantly influence various aspects of daily life, including education. Recent studies suggest that the use of smartphones can have a positive impact on students' cognitive abilities, such as problem-solving skills, memory retention, and information processing speed. Smartphones, when used for educational purposes, provide students with easy access to vast resources of information, enabling them to engage in self-directed

learning. This autonomy in learning fosters critical thinking and enhances cognitive flexibility, as students navigate multiple sources to synthesize and analyze data in real-time. Hence, smartphones are instrumental in promoting active cognitive engagement among students, aligning with modern pedagogical approaches that emphasize constructivist learning.

Furthermore, smartphones facilitate the development of emotional intelligence (EI) by providing platforms for enhanced social interaction and communication. Through various apps and social media platforms, students can engage in collaborative learning and teamwork, which are essential components of EI. These platforms offer opportunities to share ideas, express emotions, and provide peer support, allowing students to become more aware of their emotions and those of others. The ability to manage interpersonal relationships is crucial in developing empathy and emotional regulation, both of which are key elements of emotional intelligence. Therefore, when used responsibly, smartphones can contribute to emotional maturity, enabling students to navigate social interactions in both personal and academic settings.

Smartphones have transformed how we communicate and interact, becoming a primary necessity, especially for children and adolescents. In Indonesia, the use of smartphones among elementary school students is very high, reflecting a shift towards the era of digitalization and the fourth industrial revolution. The Minister of Communication and Information, Johnny G. Plate (2020), stated that Indonesia aspires to become an advanced digital nation. However, there is a paradox in the use of smartphones among students. Although smartphones can be powerful tools for learning, the government prohibits their use in elementary schools to protect children from negative impacts (JPNN, 2018). Excessive use of smartphones for non-educational purposes, such as entertainment and social media distractions, can lead to cognitive overload and diminished attention spans. It is essential that educators guide students in the responsible use of smartphones, encouraging them to leverage these devices for intellectual growth and emotional development. Structured use of smartphone applications, such as digital note-taking, educational games, and language learning apps, can enhance cognitive capabilities while fostering emotional intelligence through virtual collaborative tasks.

This study aims to analyze the impact of smartphone use on the cognitive abilities and emotional intelligence of students at SDN 2 Pogung, particularly in grades 4, 5, and 6. The focus is to provide an objective assessment of the role of smartphones, in line with the views of Prof. Mukhtasar Syamsudin and Dr. Ford Lumbon Gaol on the importance of cognitive abilities and emotional intelligence in the era of the fourth industrial revolution. Smartphones offer significant potential in advancing both cognitive abilities and emotional intelligence among students. When utilized effectively within educational contexts, these devices can transform learning environments, promoting higher-order thinking skills and emotional resilience. Therefore, it is imperative for educators to integrate smartphones strategically into the curriculum to maximize their positive impact while minimizing distractions, ensuring that students are equipped with both the intellectual and emotional competencies required in the 21st century.

2. METHODS

2.1. Research Design

This research uses a qualitative descriptive method to analyze the impact of smartphone use on the cognitive abilities and emotional intelligence of students in grades 4, 5, and 6 at Pogung 2 State Elementary School (SDN 2 Pogung). The qualitative approach was chosen to allow for an in-depth exploration of the students' experiences and perceptions regarding smartphone use in their daily academic and social lives. By using a descriptive framework, the study aims to capture detailed accounts and provide a holistic understanding of how smartphone use influences both cognitive development and emotional intelligence in young learners. This method is appropriate for uncovering subtle nuances in behavior and thought processes that may not be easily measurable through quantitative means. The research subjects were selected using purposive sampling, ensuring that the participants were representative of the target population in terms of smartphone usage habits and academic performance. The selection criteria included students who regularly use smartphones for both educational and recreational purposes.

2.2. Instruments

The research employed a qualitative approach to explore the impact of smartphone use on students' learning experiences and behavior. Data collection was conducted through a combination of direct observations, in-depth interviews, and document analysis. Observations were carried out during classroom lessons to examine how students utilized smartphones in real-time educational contexts. This method provided valuable insights into their engagement, usage patterns, and the influence of smartphone use on both cognitive and emotional responses. In-depth interviews were conducted with students, teachers, principals, and parents to gather diverse perspectives on the benefits and challenges associated with smartphone integration in education. These interviews enabled a deeper understanding of individual experiences, attitudes, and the social dynamics surrounding smartphone use.

In addition to observational and interview data, relevant documentation was analyzed to contextualize findings and cross-reference observed behaviors. Documents included school policies on smartphone usage, lesson plans incorporating technology, and any existing reports or evaluations of digital learning initiatives within the school setting. This triangulation of data sources ensured the reliability and validity of the research findings by providing a comprehensive view of the phenomenon. The combination of multiple data collection techniques allowed the study to capture a holistic picture of how smartphones influence students' cognitive abilities and emotional intelligence, as perceived by various stakeholders in the educational environment.

2.3. Data Analysis

The data analysis in this study followed the Miles and Huberman model, which is widely recognized for its systematic approach to qualitative data analysis. This model involves three main stages: data reduction, data presentation, and conclusion drawing. During the data reduction phase, the data collected were carefully organized, filtered, and simplified to focus on the most relevant information that aligned with the research objectives. Subsequently, in the data presentation phase, the processed data were displayed in an organized manner through tables, charts, or narrative formats, enabling the researchers to easily interpret patterns and relationships within the data. Finally, conclusion drawing involved the careful synthesis of the presented data to extract meaningful insights and determine key findings that address the research questions.

To ensure the validity and reliability of the data, this study employed source, technique, and time triangulation. Source triangulation was used by gathering information from multiple participants and settings, allowing cross-verification of the data. Technique triangulation involved using different data collection methods—such as interviews, observations, and document analysis—to ensure comprehensive and consistent results. Finally, time triangulation was applied by collecting data at different points in time, ensuring that the findings were not influenced by temporary or situational factors. This robust triangulation approach ensured the accuracy, consistency, and credibility of the research findings, providing a reliable foundation for drawing conclusions.

3. RESULTS AND DISCUSSION

This study employed a qualitative research design to examine the use of smartphones among students at SDN 2 Pogung and its effects on their cognitive abilities and emotional intelligence. Data collection methods included direct observations and semi-structured interviews with key stakeholders: students, teachers, and parents. The observations provided insights into the frequency and context in which students used smartphones, while interviews helped reveal the perceptions and experiences of teachers and parents regarding smartphone usage for learning and communication. The combination of these methods allowed for a comprehensive understanding of the multifaceted role that smartphones play in students' daily lives, both academically and socially.

Additionally, case studies of individual students, such as D.A.A. and J.A.C.A., were conducted to explore specific patterns of smartphone usage. Both students reported using smartphones for 2.5 to 3 hours daily, primarily for accessing educational platforms like Google Classroom and Zoom, alongside other online learning resources. These case studies provided concrete examples of how smartphones could

facilitate cognitive growth, such as improved memory retention and enhanced understanding of lesson materials. The research design, therefore, integrated observational data with personalized case studies to illustrate the impact of smartphones on both cognitive abilities and emotional intelligence, reinforcing the potential benefits of technology when utilized appropriately in educational contexts.

Also, the study highlighted the cases of two students, A.J.A. and F., who reported significant time spent on entertainment activities, such as gaming and video streaming. These findings were corroborated by interviews with parents and teachers, who expressed concerns about the difficulty of regulating smartphone use for non-educational purposes, underscoring the potential negative impacts on students' focus and academic responsibilities. By integrating multiple perspectives, the research design aimed to capture the nuanced relationship between smartphone use and its effects on both learning outcomes and emotional development.

To ensure reliability and depth of analysis, this study employed triangulation by cross-referencing interview data with observational data and screen time reports from the students' devices. These additional sources of information allowed for a more accurate assessment of how students allocate their time on smartphones, distinguishing between time spent on educational versus entertainment activities. The study further explored the implications of excessive entertainment use, particularly how it disrupts attention and cognitive engagement in school-related tasks. In this way, the research design not only addresses the dual role of smartphones in students' lives but also emphasizes the importance of developing strategies for parents and teachers to monitor and guide the responsible use of these devices in academic settings..

To explore the emotional dimensions, the research focused on how frequent communication through smartphone applications, such as WhatsApp, affected students' ability to understand and manage emotions. Interviews and focus group discussions were conducted with students, including individuals like I.P. and R.Y.P., to assess how their regular use of messaging apps contributed to their social awareness, empathy, and interpersonal skills. These qualitative methods provided insight into how smartphone-mediated communication enhanced students' abilities to recognize and respond to the emotional needs of their peers, thereby supporting the development of core emotional intelligence traits such as empathy and social responsibility.

In addition to empathy, the study also examined how smartphones facilitated the development of self-awareness and self-regulation. Data collected from interviews and digital behavior logs revealed that students who used smartphones to seek additional learning resources or engage in online discussions demonstrated improved motivation and time management skills. This is in line with the findings of Wang et al. (2023) who revealed that smartphone behavior is a mediating variable that affects students' academic performance. Fewer opportunities to access smartphones can have a negative impact on learning effectiveness and academic performance. For instance, students who participated actively in educational chats or forums were more likely to show discipline in balancing their online activities with academic responsibilities. This dual focus on social interaction and individual study behaviors allowed the research to capture the broader impact of smartphone use on students' emotional intelligence, particularly in fostering self-regulation, which is critical for personal and academic success.

Overall, this research shows that smartphones can be useful tools in supporting learning and emotional development if used appropriately. Students who utilize smartphones for educational activities tend to show improvements in various cognitive and emotional aspects. However, it is important to balance smartphone use between educational needs and entertainment to maximize its benefits and minimize potential distractions. Support from teachers and parents is crucial in guiding students to use technology wisely and effectively. In the existing literature, Lin et al. (2021) claim that smartphones can improve students' academic performance if used appropriately.

4. CONCLUSION

This research concludes that smartphone use among students at SDN 2 Pogung has a relative impact on their cognitive abilities and emotional intelligence. Students who use smartphones for academic purposes, such as participating in online learning and seeking additional information, show improvements in remembering, understanding, and applying knowledge. Additionally, smartphones help in developing self-awareness, self-regulation, motivation, and social skills, especially through communication and

collaboration with peers and teachers. However, excessive use of smartphones for entertainment can disrupt concentration and study time. Therefore, the role and supervision of parents and teachers in guiding smartphone use are essential to maximize educational benefits and reduce negative impacts.

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Data Availability Statement. All data can be obtained from the corresponding author.

Conflicts of Interest. The authors declare no conflicts of interest.

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