

High Interaction of Elementary School Students with Gadgets: How Does Their Social Growth?

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ABSTRACT

Purpose - The students who frequently use gadgets tend to be more individualistic and less concerned about the needs of friends or others. This interferes with the formation of social attitudes that are essential for a student's character development. Therefore, this study will describe the phenomenon, focusing on answering research questions: How is the intensity of gadget use among 6th-grade students? Moreover, what is the impact of gadget use on the social attitudes of 6th-grade students?

Methodology - Qualitative descriptive methods were used in this study. The participants were 6th-grade students. They were then observed and interviewed in depth, including their parents, teachers, and principal. Data were collected using surveys, interviews, observation, and documentation techniques. The research data were analyzed in three stages: data condensation, data display, and conclusions.

Findings - The results showed that the level of gadget use among 6th-grade students at Mentari Public Elementary School, Kota Parepare, South Sulawesi, was relatively high. The high interaction of two students with these gadgets has a significant negative impact on students' social attitudes. The impacts are making them less physically and more focused on gadgets. They experience decreased communication skills, especially in face-to-face situations. They tend to be less confident, less fluent in speaking, and often not focused when invited to communicate. It also distracts students from their responsibilities and makes students more aggressive and less polite when interacting with others.

Contribution - Based on research data and a review of various literature, it is evident that high-intensity gadget use poses potential problems for the social growth of elementary school children. This study shows a variety of these problems. This contributes to scientific studies on children's social growth and the use of gadgets among children.

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INTRODUCTION

Gadgets have become necessary in modern life, driving very high information mobility. Gadgets function not only as communication tools, business tools, data collectors, audio recorders, information aids, and documentation (Kurniawati & Sutharjana, 2023; Mitra, 2010). The many functions make them increasingly necessary for all groups, including children, who are also becoming increasingly familiar with using gadgets. The use of gadgets among elementary school children has positive and negative impacts. Sari et al. (2023) state that gadgets can increase students' insight and knowledge through educational learning media. However, the negative impacts include disruption of educational progress, psychological problems, declining academic achievement, and poor social interaction skills. Widya (2020) explains that elementary school children who frequently use gadgets tend to be more individualistic and less concerned about their friends or others. This interferes with the formation of social attitudes that are essential for a student's character development. Positive social attitudes play an essential role in learning achievement and daily life. According to Sastradiharja et al. (2023), social skills must be learned through social interaction and the learning process, where parents and teachers play an essential role in teaching moral values.

Social attitude refers to the way a person responds to specific stimuli within their social environment. According to Sarnoto and Andini (2017), social attitude refers to a person's ability to remain calm or exhibit fear in response to situations, environments, objects, or other people, both positive and negative. It is related to the mental and emotional conditions of others. Utami et al. (2022) stated that social attitude is a crucial and important concept in education. One of the primary strategies employed by parents in child development is social development, specifically efforts to help children adapt to life in the broader community (Adwiah & Diana, 2023). Children must be able to adapt to their environment in order to coexist with others in society.

Early observations at Mentari Public Elementary School, Kota Parepare, South Sulawesi (for research ethical clearance purposes, the actual name is not disclosed) revealed that some 6th-grade students appeared to spend more time using gadgets after school or at home. Initial observations also revealed that they had poor social attitudes, including being antisocial, lacking discipline, speaking rudely, and teasing friends at school and home. The researcher closely observed this phenomenon for about 4 months, specifically during the researcher's participation in the Program Kampus Mengajar of the Ministry of Education, Culture, Research, and Technology in early 2023 at these schools.

Several previous studies have described the phenomenon in the 6th grade of the school. For example, research by Rini et al. (2021) suggests that excessive gadget use can lead to a decline in children's social and physical activities. Ashifa et al. (2022) state that excessive use of gadgets makes students less able to communicate directly with their social environment. Utami et al. (2022) also concluded that gadgets could reduce children's social and physical activities and playtime with their friends. Based on previous research literature studies (Ashifa et al., 2022; Rini et al., 2021; Utami et al., 2022), the authors have not explicitly utilized the naturalistic investigation data collection method. Qualitative naturalistic investigation is a crucial method employed by researchers, enabling participants to freely and naturally express their experiences of excessive gadget use and its impact on social attitudes (Lincoln, 1995; Lincoln & Guba, 1985). They also research with a dominant background in school, not balancing it with the background of students' lives at home. To obtain comprehensive data on children's social behavior, it is necessary to observe their lives outside of school and gather data from their parent's perspective. There is a gap in methods and research background.

Therefore, a study is needed on the topic of gadgets and their influence on the social behavior of elementary school students, considering their life background both at school and at home, using a naturalistic inquiry approach. This research will fill the research gap. For this reason, in-depth research is needed on the qualitative use of gadgets among elementary school students and their impact on their social attitudes. Thus, this research will help to fill the gap or deficiency in the existing literature. This study aims to investigate the impact of gadget use intensity on the social attitudes of 6th-grade students at Mentari Public Elementary School in Kota Parepare, South Sulawesi. It attempts to answer the following research questions: 1) How is the intensity of gadget use among 6th-grade students? 2) What is the impact of gadget use on the social attitudes of 6th-grade students?

METHODOLOGY

This research method is qualitative. This research method is used to investigate the condition of natural objects, where the researcher serves as the primary instrument of observation. According to Moleong, qualitative research is research that intends to understand the phenomenon of what is experienced by the research subject, for example, behavior, perception, motivation, action, etc., holistically and through description in the form of words and language, in a specific natural context and by utilizing various natural methods (Satori & Komariah, 2009). In this study, the researcher aims to understand and describe the experiences of elementary school students who use gadgets excessively and their impact on their social attitudes. To produce data as naturally as possible, the researcher conducts a naturalistic investigation (Lincoln & Guba, 1985), allowing each participant to freely and naturally express their experiences of excessive gadget use and its impact on social attitudes.

Participants and Ethical Clearance

All participants in this study have agreed to be observed, interviewed, and recorded in audio, video, and photographic formats. However, they provide notes to prioritize initials in publications. Thus, all participants, including the school, are listed by initials. For photo and video documentation, it is not published in any form except in complete research reports and is not included in journal articles. For this reason, although photos are one of the primary data for this study, for the sake of ethics and the participants' comfort, all photos supporting the data are not displayed.

This research was conducted at Mentari Public Elementary School in Kota Parepare, South Sulawesi (to comply with research ethical clearance, the actual schools name has been omitted). The subjects of this study were 12 6th-grade students. They became survey participants and filled out questionnaires. Then, from a sample of 12 students purposively selected, two students exhibited symptoms of excessive gadget use in their daily lives. In addition to the two students, two of their parents, two teachers, and two principals became participants in this study. The Table 1 provides a summary of the detailed research participants in this study.

Table 1. Detail Research Participants

| Participants | Initials | Gender | Age | Role | Additional Details |
|--------------|----------|--------|-----|------------------|--|
| Riri | RR | Female | 12 | Student | Uses gadgets (smartphone, tablet) for 6–7 hours/day; applications include online games, social media, and YouTube. |
| Raha | RH | Male | 12 | Student | Uses gadgets (smartphone, laptop) for 5–6 hours/day; applications include YouTube, social media, and online games. |
| Mrs. Yuri | YR | Female | 38 | Parent | The mother of one of the students |
| Mrs. Anida | AN | Female | 35 | Parent | The mother of one of the students |
| Ms. Nibi | NB | Female | 44 | Teacher | Teaching experience: 5 years; has known RR and RH for 5 years |
| Mrs. Mala | ML | Female | 56 | School Principal | Principal for 4 years for both RR and RH |

Data Collection

Survey

The survey was used to collect data from students regarding ownership, access, and their overall experience. The student experience survey was aimed at students in 6th grade. This survey was designed to gather data and verify the findings against interview data and observational results. This survey data is used not to calculate or prove statistics but to obtain initial data to be followed up in depth through observation and interviews.

Interview

In this study, the researcher also employed an interview technique to gather data that complemented the questionnaire data on the intensity of gadget use and its impact on social attitudes. This interview reinforces the study's findings on the impact of gadget use intensity on students' social behavior. The researcher used an interview instrument as a guideline to ensure data accuracy. The researcher conducted interviews with several students, parents, principals, and teachers. The interview results were assigned the code W, followed by the position of the participants: students were assigned the code S, parents were assigned the code OT, teachers were assigned the code G, and the principal was assigned the code KS.

Observation

Observation is a data collection method in which researchers record information as it is gathered during the research process. In this study, researchers observed the daily activities of 6th-grade students, including their use of gadgets, interactions, and social activities at school, as well as some students' activities at home.

Documentation

Documentation seeks information about specific variables or aspects that are recorded, transcribed, photographed, and/or videoed. Documentation can also be in evidence or documentation of research activities. The documentation in this study consists of documents, notes, photos, and videos related to the social activities of 6th-grade students at Mentari Public Elementary School in Kota Parepare, South Sulawesi. However, although photos are one of the primary data sources in this study, for the sake of ethics and the participants' comfort, not all photos supporting the data are displayed in this article (see Ethical Clearance).

Data Collection Tools

Questionnaire

As previously explained, the questionnaire in this study was not designed within the framework of statistical analysis. However, it was used as initial data collection on gadgets by 6th-grade students at Mentari Public Elementary School Kota Parepare, South Sulawesi. This questionnaire data was obtained from students. The results will be described and serve as primary data for further data collection, including interviews, observations, and documentation. The questionnaire will contain information about gadget ownership and access, frequency and culture of gadget use, parental control, and impact of use. In addition, the questionnaire will contain information about social behavior, developed based on four dimensions: discipline, responsibility, politeness, and concern.

Observation Guidelines

This study will use the Observation Guidelines instrument to conduct observations. These guidelines will guide researchers in collecting data on the daily activities of 6th-grade students at Mentari Public Elementary School in Kota Parepare, South Sulawesi, using gadgets and their social behavior, both in school activities and at home. By conducting observations at school and home. For this reason, the observation guidelines include notes on gadget usage and students' social activities both at school and home.

Interview Guidelines

As previously explained, this study will conduct interviews with students, teachers, principals, and parents of the students. The participants will be selected purposively (purposefully) by selecting students with high-intensity gadget usage and different social attitude characteristics from other students. The interviews will use guidelines on gadget ownership and access, frequency and culture of gadget use, and the impact of gadget use.

Role of Researchers

In qualitative research, researchers play a crucial role in planning, observing, conducting interviews, and documenting the findings. Qualitative research is a key instrument (Satori & Komariah, 2009). Thus, researchers play a direct role and are directly present in research activities.

Validity and Reliability

According to Raibowo et al. (2019), qualitative research is expected to reveal objective truth. Therefore, the validity of data in qualitative research is fundamental. Qualitative research's credibility (trustworthiness) can be achieved through data validity. In this study, triangulation was used to obtain data validity. *Triangulation* is a data validity checking technique that utilizes something other than the data for checking purposes or as a comparison to the data (Satori & Komariah, 2009). This study refers to the data validity process by employing validity strategies (Creswell, 2014, p. 191), including triangulation of various sources and data collection techniques, as well as further checks to determine the accuracy of qualitative findings. For this reason, triangulation in this study was carried out by 1) triangulating data collection, namely collecting data from various sources to complement and cross-check each other. The data collection methods included questionnaires, observations, interviews, and documentation. 2) Triangulation of data sources, which involves collecting data from various sources that complement and cross-check each other. These data sources include students, teachers, parents, and principals.

Data Analysis

The research data was analyzed by referring to the data analysis concept of Miles et al. (2014), namely: 1) Data condensation, which will lead to the process of selecting, focusing, simplifying, abstracting, and transforming data that approaches the entire section of written field notes, interview transcripts, and empirical documents. This data condensation process is achieved after the researcher conducts interviews and collects written data in the field, after which the interview transcripts are sorted to identify the research focus the researcher needs. 2) Data presentation (data display) leads to organizing and unifying information, which will then be concluded. Data presentation helps understand the research context by conducting a deeper analysis. 3) Conclusion drawing is a process of concluding based on all the data obtained by the researcher.

FINDINGS

The interview results described are supported by documents, photos, and videos from observations during the research process. However, according to Ethical Clearance, documents are not inserted in this data presentation for the convenience of the participants in this study.

Gadget Use by Students

Generally, the level of gadget use of 6th-grade students at Mentari Public Elementary School Kota Parepare, South Sulawesi, is high. Data on gadget ownership and frequently used applications are presented in Figures 1 and Table 2 below.

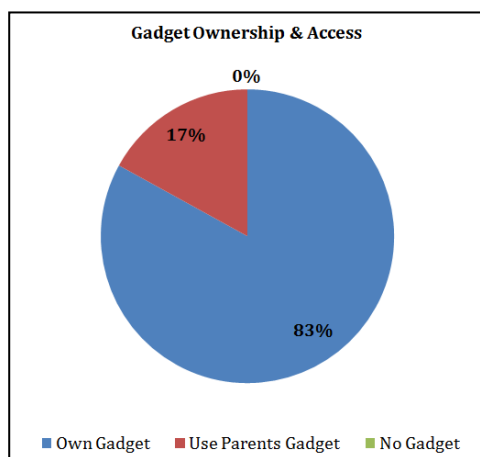


Figure 1. Gadget Ownership & Access

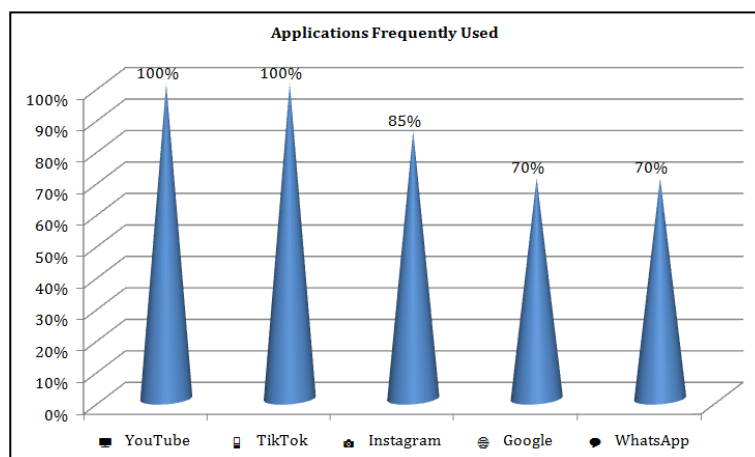


Figure 2. Application Frequently Used

This data also aligns with the interview with the principal, who states:

My monitoring of children today differs from that of children in the past. Children are more comfortable playing with gadgets than outside the house, such as riding bicycles and marbles. The culture of using gadgets is very prominent, such as often watching TiktokTiktok, videos, and other applications that affect children (WKS ML).

This is also related to an interview with a student who stated:

I often use my gadgets all day long (WS RR).

When asked what he did while playing on his cellphone, he answered:

often opening WhatsApp, YouTube, TikTok, and Instagram. All of them make me feel at home with gadgets. I like to use my cellphone for online games every day; I feel like I cannot go a day without using my cellphone (WS RH).

In terms of the frequency and culture of gadget use among 6th-grade students at Mentari Public Elementary School in Kota Parepare, South Sulawesi, they generally use their gadgets from school until late at night to engage in various activities, such as applications like YouTube, Google, Instagram, WhatsApp, and TikTok. This happens in the daily lives of children, especially the two students who are participants in this study. Statements from several research participants support this data. For example, an interview with the teacher stated that:

"... there are several students in this class who often forget to do their homework. I investigated and asked the reason. It turns out they play gadgets until late at night, like watching YouTube, playing online games, chatting with friends, and so on." (WG NB).

This is also in line with the statements of several parents who participated in this study, one of whom explained that:

"...my child plays with gadgets for 4-7 hours; every time he comes home from school, he immediately takes his gadget and plays until the afternoon – often continued at night, preferring to stay at home with his gadget rather than playing outside the house. He often watches TikTok and YouTube and chats on WhatsApp. I usually remind him to stop playing with his cell phone because it could damage his eyes and head. Sometimes, I feel worried because I often forget to eat; we are also worried that if he is addicted to playing with his cellphone phone, his learning at school is neglected." (WOT YR).

Another parent also stated that:

my child often uses gadgets until late at night, which disrupts their sleep patterns and causes fatigue and decreased concentration at school. My child also uses his gadget for 6-8 hours a day. They start from school in the afternoon and continue again, sometimes until midnight. Sometimes, his friends also come to the house to play online games. This is what sometimes causes my child to be late for school. Sometimes, my child chooses to be alone rather than play with his friends (WOT AN).

This is also to an interview with one of the students who stated:

I often use my gadget all day long. often opening WhatsApp, YouTube, TikTok, and Instagram. All of them make me feel at home with gadgets (WS RR).

Another student added:

I like to use my cellphone for online games every day; I feel like I cannot go a day without using my cellphone (WS RH).

In interview data on the use of gadgets for learning purposes, research participants explained that: *in this school, it is forbidden to bring gadgets to school unless there are media that uses gadgets, then students are allowed to bring gadgets. Today students are allowed to bring gadgets to school because today students have finished their exams, so they are allowed to bring gadgets to school (WG NB).*

This data is also based on interviews with parents who stated:

I forbid my child to bring gadgets to school every day unless there is an order from the school or teacher (WOT YR).

Another parent stated:

My child cannot bring gadgets to school every day. I permit if the teacher asks me to bring gadgets to school (WOT AN).

This data is also in line with interviews with the principal, who stated that:

Students at this school are prohibited from bringing gadgets to school every day because I am worried that it will interfere with their learning and in terms of security, I am also worried that something unexpected will happen (WKS ML).

This is also by an interview with one of the students with the initials RR:

I am prohibited from bringing gadgets to school by the teacher every day because I am afraid that if I bring gadgets to school, my teacher will confiscate my gadget (WS RR).

Another student also stated:

the school prohibits bringing gadgets every day because my teacher has prohibited me from bringing gadgets to school, worried that it will interfere with lessons at school (WS RH).

Recent data indicate a significant shift in the age at which children gain access to digital devices such as smartphones, tablets, and laptops. Increasingly, children are being introduced to gadgets at a very early stage in life, even during their preschool years. This early exposure reflects how deeply technology has become integrated into the daily lives of families and children. Gadgets are now widely perceived as multifunctional tools that support learning, provide entertainment, and facilitate communication. Educational apps, videos, and online resources are often used to stimulate cognitive development and supplement early childhood education. However, while these technological tools offer certain benefits, their use, if not carefully monitored and regulated, can pose serious risks to children's overall development. Excessive and unstructured gadget use can interfere with the development of essential character traits, such as self-discipline, empathy, responsibility, and social awareness. Furthermore, it can negatively impact children's emotional well-being, leading to issues such as dependency, reduced attention span, and social isolation. Therefore, the uncritical incorporation of gadgets into children's lives demands thoughtful guidance and active supervision from parents, educators, and policymakers to ensure that technology serves as a support for growth rather than a barrier to healthy development.

Impact of Gadget Use on Students

Social Interaction

Based on data from the questionnaire, gadget use has a significant impact on students' social attitudes. Some students experience deviations in their social interactions, such as socializing less or engaging in physical play with their friends, because their focus after school is primarily on gadgets. Students often prefer to bring their gadgets to extracurricular activities and are frequently busy with them before starting these activities rather than interacting with their friends.

The findings are based on data from interviews with various parties. An interview with a 6th-grade teacher stated,

Their interactions now prefer to be via social media, or they visit each other's houses to play online games together or play together. Well, at that time, they were busy with their respective gadgets, even though they were in the same playing location (WG NB).

This is also reflected in the results of parent interviews, which indicate that:

my child prefers to stay in his room and rarely interacts with people at home." If I talk to him, his eyes are always focused on his gadget (WOT YR).

Other parents also stated that:

when my child plays online games, and I talk to him, my child often just responds by being silent and not responding to his parent's words. This means that he often ignores when asked to communicate (WOT AN).

This data is also in line with the principal's interview, which stated that

children today can be said to have a low level of interaction and sometimes politeness towards their teachers because the shows on gadgets influence them (WKS ML).

Communication Skills

The findings indicate that students experience a decline in their communication skills, such as lacking confidence in speaking in front of the class or front of others, because these students often isolate themselves and do not socialize or interact with others, including their parents. The results of the researcher's observations showed that two students participating in this study exhibited symptoms of less fluent interaction. When asked to talk, they were less focused on paying attention; sometimes, the question and the answer were disconnected. Their responses were relatively short when asked to interact. Moreover, their communication was increasingly constrained when they were busy with their gadgets. This finding aligns with interview data from several research participants. A 6th-grade teacher:

Sometimes it is apparent in class that students who are very gadget intensive are less confident when asked to speak in front of the class because they are embarrassed. Communication with people is also lacking, for example, when interacting with teachers or older individuals. However, the style is like communicating with their friends" (WG NB).

An interview with one of the parents stated that

my child does have poor communication skills, especially if asked to communicate directly. However, if it is via social media, he is fluent in typing on his gadget. Even his attitude is lacking in communicating directly with his parents" (WOT YR).

Another parent also stated that

my child's communication skills tend to be weak." If parents talk to my child, sometimes they are slow to understand the conversation because they are too focused on their gadget (WOT AN).

This data also aligns with the interview with the principal, who stated that

children today are different. However, some children possess good verbal communication skills, concentration, and empathy; however, many struggle with poor communication skills and lack confidence when presenting in class. When talking to students now is like talking to their friends. These children are influenced by the culture of very high gadget use (WKS ML).

Activity Balance

One of the most striking impacts of gadget addiction is decreased physical activity. Children who use gadgets too often tend to be less mobile, which has the potential to cause health problems such as obesity, muscle weakness, and impaired posture. Excessive gadget use also has an impact on children's social skills. Children who are addicted to gadgets tend to be more introverted and have difficulty interacting with their peers. One research participant stated:

I prefer playing games on my cellphone than playing outside. It feels more exciting, and I do not have to get tired." (WS RR).

Interviews with his parents also revealed that:

my child now sits in his room more often with his cell phone than riding a bike or playing ball outside like before." (WOT YR).

This also happened to other participants who stated,

I am more comfortable sitting and lying down watching YouTube or playing games than playing with friends outside; it feels more fun and comfortable, not tired (WS RH).

His parents also observed changes in their child and stated,

My child rarely hangs out with his friends or goes out to play with them. He spends more time sitting or lying down alone and spending time with his cell phone (WOT AN).

His class teacher also stated,

RR and RH often look tired and unmotivated during lessons, especially if they require physical activity. He sits alone more often than playing with his friends (WG NB).

Psychological Impact

The participants of this study stated that they experienced anxiety and depression as a result of excessive gadget use. One stated:

I feel anxious if I do not hold my cellphone like something is missing if I do not update the game." (WS RR).

Another participant stated:

I am always encouraged to watch videos or play games until night. That is why it is difficult to wake up in the morning, and I often get angry if I am woken up" (WS RH).

Parents stated that their children often go to bed late at night because they play games or watch videos on their devices.

My child often does not go to bed until midnight because he cannot stop playing games. This lack of quality sleep hurts my child's fitness and physical health." (WOT YR).

Another parent stated,

My child has become more withdrawn and rarely interacts with family members. I see my child becoming more irritable and difficult to talk to when he is busy with his gadget." (WOT AN).

Class teachers also noticed an increase in anxiety levels among students who often use gadgets.

Children become more anxious and unable to focus on lessons because they play games or use social media too often (WG NB).

Impact on Students' Social Attitudes

Discipline

The results of an interview with one of the student participants in the study showed data that he often forgets the time when playing games on his gadget. As a result, He is often late in doing his homework and sleeping late at night (WS RR). Another student also stated that when there is schoolwork, he prefers to postpone it because he prefers to play games or watch videos on YouTube (WS RH). This is reinforced by the results of interview data with their parents, who stated that his child used to be very disciplined, but since having a gadget, he often postpones his homework (WOT YR). Another parent explained something similar that he looks significant changes in his child's habits. He often ignores schoolwork or just helps his parents at home (WOT AN). This data is also reinforced by interviews with teachers who stated that some of students show a decline in terms of time discipline. They are often late in submitting assignments and tend to be unfocused during lessons. They are less disciplined in following class rules and are more often distracted by the desire to use gadgets (WG NB). These data indicate that excessive use of gadgets disrupts children's daily rhythms, causing them to tend to postpone tasks and disregard existing rules. This lack of discipline can have long-term effects on their ability to manage time and responsibilities effectively.

Responsibility

The results of an interview with one of the student participants in the study showed data that he often forgets to do his homework because he is too busy playing games (WS RR). Another participant stated, sometimes he lies to his parents about having finished his schoolwork, even though he has not done it (SW

RH). This was also reinforced by their parents, one of whom stated that his child is often irresponsible for schoolwork or parental orders because he is too focused on his gadget (WOT YR). The class teacher also stated that students who are addicted to gadgets are often irresponsible in completing schoolwork. He also often see them being less responsible in completing group projects (WG NB). These data show that gadgets can distract children from their daily responsibilities at home and school. Gadget addiction makes them tend to ignore obligations and prioritize digital entertainment.

Politeness

The results of an interview with one of the student participants in the study showed data that:

I feel more easily angered when my parents try to take my gadget." (WS RR). I get angry easily if someone disturbs me while playing games. Sometimes I speak rudely to my friends if they disturb me when I play." (WS RH).

Their parents also stated:

My child becomes more often rebellious and angry when asked to stop playing with gadgets" (WOT YR). He becomes less polite and often does not listen when someone else reminds him to stop playing his game" (WOT AN).

This is also reinforced by the statement of the class teacher that:

Students who play gadgets too much tend to be more aggressive and less polite towards others, including their friends (WG NB).

These data suggest that excessive interaction with gadgets can lead to significant behavioral changes in children, resulting in increased aggression and less polite behavior when interacting with others. A lack of healthy social interaction and exposure to inappropriate content can cause this.

Concern

The results of an interview with one of the research participants students showed that "I prefer to play alone with my gadget rather than playing with friends or siblings." (WS RR). Another student stated, "I often do not notice that there are friends who are having trouble because I focus on playing games." (WS RH). Their parents also stated, "My child seems less concerned with his surroundings since he often plays with gadgets. For example, he is still busy playing even though he is sitting on a dirty floor. He should have cleaned the floor first" (WOT YR). Another parent stated, "He is no longer interested in family or social activities. He only cares about games. This makes me very worried" (WOT AN). His class teacher also stated, "I see a decrease in empathy among students addicted to gadgets. They care less about their friends around them. These children tend to be more individualistic and less involved in activities that involve social interaction at school." (WG NB). These data indicate that gadget addiction can reduce children's level of concern for others and their surroundings. Lack of direct interaction and social experience can make them less empathetic and more self-focused.

The interview data described in the previous paragraphs are also reinforced by repeated observation data from researchers on the daily activities of two students who participated in this study. The observation data yielded the following conclusions. RR (12 years old) is used to using gadgets for 6-7 hours per day. Types of gadgets include smartphones, tablets, and applications, which are often used for online games, social media, and YouTube. RH (12 years old) uses gadgets for 5-6 hours per day, including smartphones and laptops, as well as applications commonly used on YouTube, social media, and online games. In-depth observations of the daily lives of research participants at school produced data that they: 1) tend to avoid interaction with their classmates. When with their friends, they prefer to sit alone, or when carrying gadgets, they prefer to play games rather than interact with their friends. 2) rarely participate in class discussions. He often looks unfocused on his learning. When invited to participate, he appears hesitant and lacks confidence. 3) show signs of isolation and irritability. They rarely smile or show positive emotional expressions when interacting with others. 4) tend to be sleepy and appear tired in class. They rarely raise their hands to answer questions and often do not complete assignments on time. 5) They exhibit behaviour that tends to be apathetic towards the activities around them. This is very apparent when they are involved in group work. These observations

indicate that gadget addiction can reduce children's social interactions in the school environment. They tend to isolate themselves and show low interest in social and academic activities.

Meanwhile, in-depth observations of the daily lives of research participants at home produced data that they: 1) preferred to spend time in their rooms playing games rather than interacting with family members. They were often busy with their gadgets at night and rarely engaged in family conversations. 2) showed low interest in family activities such as gathering or playing together. He seemed more interested in the virtual world in his gadget. 3) showed a lack of empathy and concern for family members. He seemed indifferent to what was happening around him as long as he could play games. 4) showed low interest in outdoor activities or other family activities. He preferred to watch videos or play games on his gadget. 5) appeared to lack adequate social skills. He was not accustomed to lengthy conversations and tended to give brief answers when spoken to. Observations at home reinforced the finding that gadget addiction can lead to decreased social interaction and involvement in family activities. Children who are addicted to gadgets tend to isolate themselves and show low interest in social activities in the home environment.

Data from field observations reinforce the findings obtained through interviews, clearly indicating that excessive gadget use exerts a significant negative influence on children's social behavior. Children who exhibit signs of gadget addiction often tend to withdraw from their surroundings, choosing to engage with screens rather than with peers or family members. This self-isolating behavior leads to a noticeable decline in interest in face-to-face social interactions, which in turn hampers the development of essential social skills. Furthermore, their social attitudes are adversely affected, as shown by a reduced sense of discipline, a weakened sense of personal responsibility, and a noticeable decline in politeness and empathy toward others. Children become more irritable, impatient, and less aware of their social environment, which suggests a concerning erosion of foundational character values.

Given these negative implications, the data highlight the critical need for active monitoring and regulation of children's gadget use. Both parents and educators play a vital role in guiding children toward more balanced routines that include meaningful social and physical activities. Encouraging participation in group play, collaborative learning, outdoor exploration, and household responsibilities can counteract the isolating effects of excessive screen time. These activities not only promote physical well-being but also foster interpersonal communication, emotional regulation, and a sense of community —core components of healthy social development. Therefore, achieving a balanced integration of technology and real-world interaction is essential to support the growth of well-rounded, socially competent children.

DISCUSSION

Students' Gadget Use

Based on the data presentation in the results section, it can be concluded that the ownership and access to gadgets among grade VI students at Mentari Public Elementary School in Kota Parepare, South Sulawesi, indicate that most students have gadgets. Of the 12 students, 10 have their own gadgets, and two other students have gadgets that their parents own. The research data on the frequency and cultural aspects of the two students as research participants show that they use gadgets from school until late at night to engage in various activities, such as using applications like YouTube, Google, Instagram, WhatsApp, and TikTok. This condition prompted researchers to conduct further examination through an interview process and a series of observations. Interview and observation data indicate that the participants in this study exhibit a high level of gadget use, both in terms of frequency and adherence to cultural norms, in their daily lives. Indeed, gadgets have become a communication tool that has developed in the modern era and are owned by almost everyone, both adults, teenagers, and children, which function as a communication tool and a means of entertainment, such as games and social media that can be used by anyone and for anything, depending on the needs of the gadget owner (Marpaung, 2018).

Although it is a concern for their parents, this has not been able to minimize the intensity of gadget use in the two students who were research participants. This illustrates the significant impact of gadgets on the daily activities of students with high access to gadgets, supported by adequate internet. For this reason, the

potential for this to occur in other elementary school-aged children is also very high, especially in children with high access to gadgets and easy internet access. Of course, this phenomenon warrants concern for parents and educators. Prayuda et al. (2020) stated that children are now too busy using their gadgets, and as a result, they may overlook their own needs, such as learning and socializing within society. Various data sources have raised concerns about high access to digital media through gadgets and the internet, particularly regarding its impact on child development (Rusawalsep et al., 2023). This concern also has a reason if we refer to data from the Central Statistics Agency, that between 2021 and 2023, the proportion of individuals who control/own mobile phones at the age of <15 years ranged from 36.99% to 40.25%, and there was a significant increase in the proportion of internet access among the Indonesian population aged <15 years from 22.42% in 2018 to 31.23% in 2019 (BPS, 2024). Based on data from the Indonesian Child Protection Commission (KPAI), around 98 percent of children aged 6-12 years have used gadgets, with an average of children spending 6 hours 45 minutes per day using gadgets to watch videos, play games, use social media, and use game applications (Napitupulu, 2023). A study involving 322 elementary school children from three schools in North Jakarta revealed concerning trends in gadget use; nearly half (47.5%) used gadgets without parental supervision, and 16.8% had never received education about gadget use. The majority (76.3%) had social media accounts, and over half (50.3%) used gadgets for more than 4 hours daily. (Rusli et al., 2021). The data and daily behavior of children with gadgets align with the results of other research, which indicate that the majority of children use gadgets for more than 60 minutes per day, accounting for approximately 60.61%. The type of gadget used is smartphones or mobile phones (84.85%), and the applications that are often used are games (66.67%) and educational games (60.61%) (Setiawati et al., 2019).

Impact of Gadget Use on Students

Interview and observation data show a high intensity of gadget use in two elementary school students who are research participants. Then, it has a significant impact on their social interactions. They spend more time with their electronic devices than interacting directly with friends. The high intensity of gadget use can cause children to withdraw from social activities and peer interactions. A study concluded that playing gadgets for a reasonably long duration, done every day, can lead to children developing into antisocial individuals (Amri et al., 2020; Sianturi, 2021; Susijati et al., 2021). Other studies also concluded that there are differences and changes in communication and social contact that occur within the family before and after the use of gadgets by family members, which then affects the pattern of social interaction in the family as a whole so that the influence of the use of these gadgets on social interactions in the family can be seen (Lestari et al., 2015; Rohana & Hartini, 2020).

The next impact is that children with intense gadget use experience a decrease in face-to-face communication skills because they are not accustomed to facial expressions, voice intonation, and other non-verbal cues that are important in direct social communication. This impact is very possible due to low direct social interaction. Children who prefer their gadget world to interacting with peers or siblings lead to a decrease in their communication skills. This finding aligns with various studies that conclude that high-intensity gadget use has an impact on children's communication and speaking skills (Amanah & Robingatun, 2023; Noorhayati & Dewi, 2019; Utomo et al., 2024).

Research data also shows that children with high gadget use prefer to play games or watch videos rather than play outside or participate in group activities, which can lead to social isolation, feelings of loneliness, and even mental disorders if left untreated. High-intensity gadget use often causes children to reduce their participation in physical and social activities that are important for their social and emotional development. The balance of activities is disrupted due to a lack of participation in sports, playing outside, and group activities. This can reduce their opportunities to learn critical social skills in forming peer relationships. Various studies have shown that during a child's development, a balance of activities is necessary at school and home, encompassing both virtual and real-world play. Therefore, parents and educators need to facilitate a balance of activities for children (Sabani, 2019; Sobon et al., 2024).

Furthermore, interview and observation data also indicate that children who spend excessive time with gadgets are likely to be less empathetic and less concerned about others. They may become less sensitive to

the feelings and needs of their friends, which can hinder their ability to form healthy and supportive relationships. Instead, they are easily angered and easily frustrated, which can result in poor mental health. A study found that excessive intensity of dealing with gadget screens can increase the risk of psychological disorders, depression, and anxiety and shows a correlation between gadget use and increased mental health problems in children (Twenge & Campbell, 2018). Other studies also conclude that gadget usage has an impact on students' mental health, such as anxiety, stress, and gadget addiction (Fikri et al., 2023; Kamaruddin et al., 2023; Priadi et al., 2021).

Research data also shows that excessive gadget use disrupts children's daily rhythms, making them more likely to postpone assignments and ignore existing rules. A study concluded that the higher the use of gadgets by students, the lower their level of discipline (Ramadhani & Suyoto, 2024; Sopiandi et al., 2023). This lack of discipline can have a lasting impact on their ability to manage time and responsibilities effectively. High-intensity use of gadgets can distract children from their daily responsibilities, both at home and at school. Gadget addiction makes them tend to ignore obligations and prioritize digital entertainment. One conclusion of a study states that the better students use gadget media, the better their attitude toward responsibility (Yulianti et al., 2022). Another study also concluded that gadget use has several impacts on the character development of elementary school students, including becoming individualistic, rarely interacting socially with the outside environment or their peers, and neglecting responsibilities such as studying and worshipping (Sauri et al., 2022).

Excessive interaction with gadgets can also lead to significant behavioral changes in children, causing them to become more aggressive and less polite in their interactions with others. A lack of healthy social interaction and exposure to inappropriate content can cause this. A study reveals that children who engage in high-intensity gadget use are less likely to exhibit socially caring characteristics. This is evident in the behavior of children who are reluctant to assist others, often become angry, say rude things, and fail to respect others, as they are more interested in playing with gadgets than in caring about the people around them (Agustina et al., 2022). Other research concludes that the impact of social media use among elementary school students, such as TikTok, on children's manners is that they become more indifferent to their surroundings when busy opening social media applications (Agustin & Supriyanto, 2022). The data from this study also shows that gadget addiction can reduce children's level of concern for others and their surroundings. A lack of direct interaction and social experience can make them less empathetic and more self-focused. This finding aligns with previous research, which has concluded that the use of gadgets, such as smartphones, can impact emotional character, including a lack of empathy for others and a failure to respect them (Ahadiyah et al., 2023). Other research suggests that the use of gadgets hurts children's empathy (Nurafifah et al., 2023).

The research data discussed in this section still has various limitations. In addition to the limited number of participants, the duration of the observations also does not cover the daily behavior of children 24 hours a day, 7 days a week. Therefore, there is still potential data that does not fully describe children's social behavior. From the perspective of individual friends of the participants in this study, this aspect has not been described, so there are still gaps in the social behavior of participants that have not been addressed in this research. The background of the school and the environment in which the participants live have also not been aspects of this study. These various limitations need to be followed up with additional research that complements them.

However, the findings of this research at least provide a stronger perspective on the importance of regulating gadget use among children. The findings of this research further underscore the need for serious attention, especially from parents, teachers, and policymakers, regarding the significant risks associated with uncontrolled gadget use in children. Many parents are not yet aware that gadgets can have an impact on children's social behavior, emotional development, and character. The findings of this research are also important as a reference in formulating digital education policies, a basis for compiling school rules on gadget use, and even have the potential to encourage the emergence of national regulations related to protecting children from excessive digital exposure. The findings of this research further strengthen the need for parents and teachers to establish rules for gadget use at home and school, create healthy alternative activities (such as social, physical, and creative activities), and provide active assistance when children use digital devices.

CONCLUSION

Based on the research questions and results, the level of gadget use among 6th-grade students at Mentari Public Elementary School in Kota Parepare, South Sulawesi, is relatively high. The high ownership and access to gadgets among students drive this. Two students in the study exhibited dominant activities, such as playing gadgets in their daily lives, including accessing WhatsApp, YouTube, TikTok, Instagram, and online games.

Second, the research data shows that the high interaction of elementary school students with gadgets significantly negatively impacts students' social attitudes, making them less physically and more focused on gadgets. They experience decreased communication skills, especially in face-to-face situations. They tend to be less confident, less fluent in speaking, and often not focused when invited to communicate. It also causes a decrease in physical activity, which has the potential to lead to health problems, making them more introverted and less able to interact with peers. In addition, it also causes anxiety and depression, often getting angry if asked to stop playing. Finally, it also impacts their social attitudes, as students' character, who, due to a lack of discipline, often procrastinate on assignments and ignore rules, being too focused on gadgets. The use of gadgets also distracts students from their responsibilities, both at home and at school. Excessive interaction with gadgets makes students more aggressive and less polite when interacting with others. Students who use high-intensity gadgets tend to be less concerned about their surroundings and more focused on themselves.

Based on the conclusion, this study provides several recommendations. Parents should be more selective in providing gadgets and internet facilities that are too broad and free to children. It takes firmness and guidance from parents to limit the duration and use of gadgets by children so as not to have a negative impact that interferes with their growth and development, especially in social development. Parents also provide more understanding by paying attention and supervising their children about the function of gadgets among children. For educators, it is highly recommended that they establish strong cooperation with parents in guiding children to use gadgets wisely and appropriately, taking into account their age. Educators need to guide elementary school children by providing positive learning experiences through technology, ensuring that it is not only used for entertainment by students. For schools, it is necessary to create intensive socialization programs for students to foster a sound understanding among them about the benefits and negative impacts of excessive gadget use. They can conduct more specific research on the impacts of excessive gadget use on children studied in this study. Further research can be conducted either quantitatively or qualitatively using a broader and more diverse group of participants.

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