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Descriptive Study of Gadget Usage Patterns and Their Implications for Academic Performance and Health

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ABSTRACT / ABSTRAK

The widespread adoption of digital technologies among university students necessitates a thorough investigation into their usage patterns and the multifaceted implications for academic achievement and health. This study aims to provide a descriptive overview of gadget usage patterns among university students. This study utilizes a descriptive research design with a cross-sectional approach. A sample size of 77 students was selected using a consecutive sampling sampling technique. data collection was conducted using a questionnaire in the form of a Google form. This study found that the majority of respondents were female (53.2%), aged 18-23 years (54.5%), who used gadgets for 1-6 hours daily (53.2%). The most commonly used application was social media (27.3%). Smartphones and tablets were the gadgets used most frequently (57.1%), which the respondents kept near them while sleeping (41.6%). Within the home, the TV was located in the bedroom or near the bedroom (35.1%), and the respondents reported their emotional condition as normal (68.8%). Gadget usage among students is shaped by their characteristics and behavioral patterns in utilizing technology. Further research is needed to examine the implications of these usage patterns on students' academic achievement and well-being.

INTRODUCTION

The prevalence of electronic devices designed to assist with specific tasks, known as gadgets, has become widespread in modern society, with a particularly significant impact on university students (Limniou, 2021). These gadgets have transitioned from serving as mere tools to becoming integral components of students' daily routines, academic endeavors, and social interactions (Zulkarnain et al. 2025). The widespread prevalence of electronic devices, such as smartphones, tablets, and laptops, among university students warrants a thorough investigation into their integration and utilization in the students' daily lives (Ainy *et al.*, 2025). Technological devices have become integral components of students' academic experiences, providing access to educational materials, enabling research activities, and facilitating communication with peers and faculty, thereby underscoring their central role in contemporary university life. Understanding the multifaceted ways in which students engage with gadgets is essential for optimizing their potential benefits while mitigating potential

drawbacks. It has been observed that students can communicate with each other faster and more efficiently with gadget (Amez et al., 2020).

Modern use of gadgets has rapidly increased due to technological advancements and reduced costs, making gadgets more accessible to students (Zulkarnain et al., 2025). According to the APJII survey in 2024, the number of internet users increased from 215 million in 2023 to 221 million in 2024, with an increase in internet usage penetration of 1.31% (APJII, 2024). A study conducted at the Faculty of Public Health, Muhammadiyah University of Jakarta, revealed that 68.9% of the student participants exhibited symptoms of social media addiction. Furthermore, the researchers identified factors such as fear of missing out and issues with self-regulation as predictors of this addiction behavior among the students (Nurfadhilah et al., 2024). A study of adolescents in Pagerwojo Village, Limbangan, Kendal revealed a correlation between prolonged social media use and the occurrence of insomnia among the participants (Fadhilah et al. 2022). Conversely, gadget usage among university students has been linked to adverse effects on sleep patterns, time management skills, and physical well-being (Ainy *et al.*, 2025).

Gadget usage among university students has been associated with a variety of health-related issues, including disruptions to sleep patterns, increased risk of vision problems, and musculoskeletal discomfort from prolonged use. Additionally, excessive or improper gadget usage can lead to distraction, reduced focus, and negative impacts on academic performance. It is crucial to understand and address these potential health and academic consequences to ensure students can safely and effectively leverage the benefits of technology while mitigating any detrimental effects (Varghese et al., 2022). The allure of constant connectivity and instant gratification offered by gadgets can lead to dependency and addiction, potentially affecting academic performance and overall mental health (Bayanova *et al.*, 2019).

Gadgets have positive and negative impact for university student (Wibowo *et al.*, 2020). Gadgets offer opportunities for accessing digital information and literature, but excessive usage can lead to decreased concentration and motivation to read, which is especially detrimental in academic environments (Wijaya et al., 2023). Recognizing the increasing significance of technology in higher education, this descriptive study seeks to provide a comprehensive examination of the multifaceted nature of gadget usage among university students, considering both the advantages and potential challenges associated with their pervasive presence (Kurmanova *et al.*, 2022). It is also important to note the negative impact that they can have, as they can also lead to constant social pressure, safety issues, and an overall decrease in mood and well-being (Thomas *et al.*, 2022). The availability of faster and more diverse stimuli through mobile devices has led to increased screen time, often exceeding recommended limits (Nakshine *et al.*, 2022). This excessive use can lead to a lack of focus, difficulty concentrating, and a decline in academic performance as students struggle to maintain attention in the classroom or while studying (Wijaya et al., 2023). Therefore, this research objective is to explore the habits and patterns surrounding gadget usage and their implications for academic performance and health among students in Tri Tunas National Institute of Technology and Health.

METHODS

This study utilizes a descriptive research design with a cross-sectional approach to investigate the patterns of gadget usage among students at the Tri Tunas National Institute of Technology and Health. Descriptive research is particularly well-suited for this study as it aims to provide a comprehensive and detailed account of the characteristics, behaviors, and attitudes related to gadget usage within the specified population (Madarcos et al., 2024). The research was conducted in June 2024 at the Tri Tunas National Institute of Technology and Health. The population of interest consists of all active students enrolled in various programs at the Tri Tunas National Institute of Technology and Health. A sample size of 77 students was selected using a consecutive sampling sampling technique. data collection was conducted using a questionnaire in the form of a Google form distributed online to respondents. The questionnaire was designed to collect quantitative data on patterns of gadget usage, including demographics, types of gadgets used, duration of usage, and applications utilized. Additionally, it gathered information on habits of gadget usage before bedtime, as well as the environmental conditions of the residence. The study provides a descriptive analysis to illustrate the characteristics of student behavior in utilizing gadgets.

RESULTS

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics		n	%
Gender	Male	36	46.8
	Female	41	53.2
Age	18 - 23	42	54.5
	24 – 29	6	7.8
	30 – 35	6	7.8
	36 – 41	11	14.3
	42 – 47	9	11.7
	≥ 48	3	3.9
Total		**77**	**100**

Source: Primary Data, 2024

According to Table 1, there were 36 male respondents (46.8%) and 41 female respondents (53.2%). The majority of respondents were aged 18-23 years, totaling 42 individuals (54.5%), while the fewest were aged 48 years or older, numbering 3 people (3.9%).

Table 2. Duration of Gadget Use in One Day

Time of Use (Hour)	n	%	Mean	Standard Deviation
<1	5	6.5	1.42	0.732
1 - 6	41	53.2		
7 – 12	25	32.5		
> 12	6	7.8		
Total	**77**	**100**		

Source: Primary Data, 2024

As shown in Table 2, the majority of respondents use gadgets between 1 to 6 hours per day, indicating that this range of usage is the most prevalent. Only 6.5% of respondents use gadgets for less than 1 hour. The average gadget usage time is 1.42 hours, with a standard deviation of 0.732, suggesting a relatively small variation in usage time among the respondents.

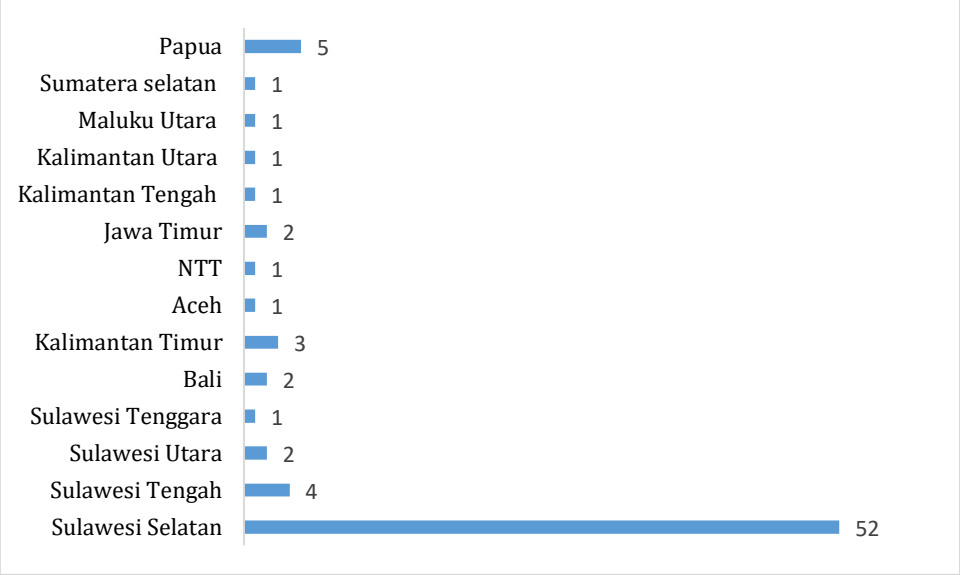

Figure 1. Geographic distribution of respondents by province

According to Figure 1, the majority of respondents, at 67.5%, were from South Sulawesi Province, spread across the city of Makassar and the regencies of Bone, Bulukumba, Enrekang, Gowa, Jeneponto, East Luwu, Pangkep, Sinjai, Soppeng, Tana Toraja, and Takalar.

Table 3. The Circumstances and Positions of Gadgets When Respondents Sleep

Circumstances and Positions of Gadgets	n	%	Mean	Standard Deviation
I keep my gadget out of reach	18	23.4	1.55	1.419
I place the gadget next to me	32	41.6		
I do not set my gadget to silent mode	9	11.7		
I keep my gadget at a distance or not in silent mode.	4	5.2		
I do not keep my gadget on silent or within reach.	13	16.9		
I do not keep my gadget in silent mode or beside me, and sometimes I place it far away from me	1	1.3		
Total	**77**	**100**		

Source: Primary Data, 2024

According to Table 3, the majority of respondents keep their gadgets near them when sleeping, indicating that many students tend to have easy access to their devices during rest. The next category shows respondents who keep their gadgets out of reach, suggesting that some students try to minimize disturbances from their devices while sleeping. Other categories,

such as not setting the gadget to silent mode and not keeping the device within reach, indicate that there are also respondents who do not take steps to minimize disturbances from their gadgets.

Table 4. The Most Frequently Used Applications when Using Gadgets

Applications	n	%	Mean	Standard Deviation
Browsing	2	2.6		
Chatting (Whatsapp, Blackberry massanger (BBM), Line, We chat, etc)	9	11.7		
Social media (Facebook, Tik Tok, Instagram, Twitter (X), etc)	21	27.3		
Gaming	1	1.3		
Chatting and social media	8	10.4		
Chatting and browsing	8	10.4	5.55	3.063
Chatting, social media, gaming, browsing	3	3.9		
Chatting, social media, browsing	13	16.9		
Social media, browsing	5	6.5		
Chatting, gaming	1	1.3		
Chatting, Social media, SMS	1	1.3		
Social media, gaming	4	5.2		
Chatting, gaming, browsing	1	1.3		
Total	**77**	**100**		

Source: Primary Data, 2024

According to Table 4, the most prevalent application used by the respondents was social media, with 21 respondents (27.3%) reporting its usage. This suggests that students tend to allocate a significant portion of their gadget usage time to social media platforms. Following social media, the application categories of chatting, social media, and browsing were also commonly used, with 13 respondents (16.9%) reporting engagement in these activities. In contrast, other categories such as browsing, gaming, and a combination of various applications showed lower percentages of usage among the study participants.

Table 5. Gadget Usage Habits Before Bedtime

Habits	n	%	Mean	Standard Deviation
I avoid using electronic devices	12	15.6		
I often use a computer or laptop.	5	6.5		
Watching TV	4	5.2		
I often use a smartphone or tablet	44	57.1	2.56	1.372
I often watch TV and use a smartphone or tablet	9	11.7		
I use a smartphone or tablet and also use a computer or laptop	2	2.6		
I watch television and use a computer or laptop	1	1.3		
Total	**77**	**100**		

Source: Primary Data, 2024

Table 5 indicates that the most prevalent habit among respondents is frequently using smartphones or tablets, with 44 respondents (57.1%) reporting this practice. Additionally, 12 respondents (15.6%) stated that they avoid using electronic devices before bedtime, suggesting that some students attempt to minimize disturbances from their gadgets. Another category, with 9 respondents (11.7%), involves a combination of watching TV and using smartphones or tablets.

Table 6. Emotional Conditions of Respondents in the Past Month

Emotional Conditions	n	%	Mean	Standard Deviation
Normal	53	68.8		
Anxiety	11	14.3		
Fear	2	2.6		
Depression	3	3.9	0.83	1.617
Anxiety and depression	3	3.9		
Anxiety and fear	2	2.6		
Anxiety and Normal	3	3.9		
Total	**77**	**100**		

Source: Primary Data, 2024

Based on Table 6, the majority of respondents reported a normal emotional state (68.8%), indicating that most students did not experience significant emotional issues in the previous month. The next largest category was "anxiety," (14.3%), suggesting that a number of students experienced some level of anxiety. Other conditions, such as "fear" and "depression," were reported by only 2.6% and 3.9% of respondents, respectively, indicating that these were relatively rare among the student population.

Table 7. Home environment

Home environment	n	%	Mean	Standard Deviation
TV in the bedroom / TV near the bedroom	27	35.1		
Noisy	3	3.9		
Hot	17	22.1		
No ventilation	1	1.3		
Hot and TV in the bedroom / TV near the bedroom	1	1.3		
Hot and no ventilation	1	1.3	1.73	2.094
Noisy, Hot, and TV in the bedroom / TV near the bedroom	1	1.3		
Noisy and hot	1	1.3		
Noisy, hot, and no ventilation	1	1.3		
Hot and other options not available in my home	1	1.3		
The above options are not available in my home	23	29.9		

Total	**77**	**100**

Source: Primary Data, 2024

According to Table 7, the most common environmental condition was "TV in the bedroom / TV near the bedroom," reported by a majority of respondents. Additionally, 22.1% of students experienced hot home conditions, suggesting that high temperatures posed a problem for some. Notably, 29.9% of students did not report any of the mentioned environmental factors. Other conditions, such as noise, lack of ventilation, and a combination of several factors, were less prevalent, each affecting less than 5% of the respondents.

DISCUSSION

The pervasive integration of gadgets into the daily lives of students has fundamentally reshaped their learning environments and social behaviors, warranting a comprehensive examination of the multifaceted implications of this phenomenon. Gadget usage is associated with poor sleep habits, which in turn can lead to declines in study habits, increased class absences, and tardiness for classes (Takeuchi *et al.*, 2018). Previous studies have established a significant correlation between gadget usage and sleep quality, revealing that students who frequently use electronic devices before bedtime tend to experience difficulties in falling asleep and maintaining adequate sleep duration (Ainy *et al.*, 2025). The habit of keeping gadgets nearby during sleep, as observed in the study, further exacerbates this issue, as it increases the temptation to engage with devices late at night, disrupting sleep patterns (Kolhar et al., 2021).

This study found that the majority of students use gadgets between 1 to 6 hours per day, with the majority also reporting the habit of using smartphones or tablets before bedtime. This is in accordance with (Zulkarnain, 2025) research that students spend 4 to more than 6 hours a day using gadgets for online lecture activities or other activities. During the Covid-19 pandemic, most students used gadgets in lectures, but this study also found that there is a tendency for students to use gadgets to find entertainment. During the Covid-19 pandemic, all lecture activities were carried out online at Tri Tunas National Institute of Technology and Health, even after the pandemic, there were still lecture activities carried out online. In this study, it was also found that social media applications, chatting, browsing are the most frequently used applications when using gadgets.

The constant flow of notifications and alerts from social media and messaging applications can disrupt students' sleep patterns and cognitive processes. Exposure to stimulating digital content via smartphones may induce heightened arousal, ultimately leading to diminished sleep quality (Rafique *et al.*, 2020). Prolonged exposure to screens, especially before bedtime, can interfere with the production of melatonin, a hormone that regulates the sleep-wake cycle (de Barros, 2024). prolonged gadget usage is also associated with eye health issues. This overuse can lead to digital eye strain, characterized by symptoms such as blurred vision, dry eyes, and headaches (Fu et al., 2021). Digital eye strain can significantly impact academic performance by causing discomfort and reducing concentration during study sessions (Ainy *et al.*, 2025). The presence of gadgets in the classroom introduces a dual-edged effect on student engagement and learning outcomes.

The study's findings also indicate that a significant number of students reported experiencing anxiety, which may be associated with gadget usage. Emotional states are also

associated with gadget usage, fear of missing out (FOMO) condition that can result in anxiety and sadness (Surat *et al.*, 2021). Previous studies reveal that smartphone use is associated with both lower self-reported grades and actual GPA (Huey et al., 2023). Gadget usage also leads to multitasking which is associated with reduced learning efficiency.

The prevalent use of social media applications among students underscores the growing importance of these platforms in shaping their social interactions, information consumption, and overall well-being. This could potentially lead to academic procrastination and cyberloafing (Ainy *et al.*, 2025). This study found that social media applications such as Facebook, TikTok, Instagram, and others were the most widely used by students. Additionally, messaging apps like Line, WeChat, and others were also commonly used by students. Students frequently encounter a barrage of both educational and entertainment-oriented messages, which can hinder their ability to focus attentively during lectures (Kassaw et al., 2023). The frequent notifications and alerts from social media and messaging applications can prove disruptive, as students may find it tempting to engage with these apps even when they recognize the need to focus on their lectures. This divided attention can impede their ability to fully concentrate on the course material (Nakshine *et al.*, 2022).

The study findings highlight the influence of environmental factors on student gadget usage. A home environment characterized by noise, poor ventilation, and the presence of television can serve as significant distractions, impeding students' ability to concentrate on academic activities. In such distracting settings, students may be more inclined to use gadgets for entertainment or as a coping mechanism. Furthermore, prolonged engagement with gadgets for entertainment purposes can lead to cyberloafing, which represents a significant impediment to academic engagement and overall performance (Feng *et al.*, 2019; Sapci *et al.*, 2021).

CONCLUSION

The study reveals varied patterns of gadget usage among students at the Tri Tunas Nasional Institute of Technology and Health. Factors such as duration of usage, the habit of using gadgets before bedtime, the types of applications frequently used, emotional conditions, and environmental factors all play important roles. These findings provide valuable insights into the daily patterns of gadget usage in the academic and health lives of students. Students should recognize the potential impacts of gadget usage and adopt prudent strategies to minimize its adverse effects. Further studies are needed to identify the influence of gadget usage on academic achievement and student health conditions.

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