

THE IMPACT OF ELECTRONIC GADGETS ON THE ACADEMIC ACHIEVEMENTS OF UNIVERSITY STUDENTS

Dr. Muhammad Shahzad Ashfaq

Assistant Professor, Faculty of Education, Fatima Jinnah Women University, Rawalpindi

drmsashfaq@fjwu.edu.pk

<https://orcid.org/0009-0007-4208-0335>

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Corresponding Author: *

Dr. Muhammad Shahzad Ashfaq

Abstract

The widespread use of electronic gadgets such as smartphones, laptops, and tablets has transformed the educational landscape, particularly at the university level. This study investigates the impact of electronic gadgets on the academic achievements of university students. The primary objectives of this research are to explore the extent of gadget usage among students, examine its influence, both positive and negative, on their academic performance, and propose strategies to optimize gadget use for educational purposes. A quantitative research design was employed using a descriptive survey method. The target population comprised B.Ed students enrolled at the Fatima Jinnah Women University, Rawalpindi. A sample of 100 students was selected through stratified random sampling to ensure representation from various academic levels. Data were collected using a structured questionnaire that included both close-ended and Likert scale items, designed to assess patterns of gadget usage, academic habits, and perceived effects on academic performance. The collected data were analyzed using descriptive statistics (mean, frequency, and percentage) and inferential statistics (correlation and regression analysis) through SPSS software. The findings revealed that while electronic gadgets positively contribute to academic activities such as accessing learning materials and enhancing communication, their excessive and non-academic use significantly correlates with reduced academic performance. Based on the results, the study recommends promoting digital literacy, establishing clear guidelines for academic gadget use, and raising awareness about the risks of gadget addiction. The study highlights the importance of a balanced approach to gadget use in fostering academic success among university students.

INTRODUCTION

The 21st century has witnessed a profound transformation in the ways individuals access, process, and disseminate information, largely driven by rapid technological advancements. Among the most notable developments has been the proliferation of electronic gadgets such as smartphones, laptops, tablets, and e-readers. These devices have become

indispensable tools in various domains, including education, where their influence continues to grow. For university students, especially in teacher education programs like B.Ed, electronic gadgets serve as both a resource and a challenge. On one hand, they offer unprecedented access to educational materials and virtual learning environments; on the other hand,

they pose risks of distraction, overdependence, and digital fatigue. Understanding the dual nature of gadget usage is essential for assessing its true impact on academic achievement.

Electronic gadgets have reshaped the educational process by making learning more interactive, accessible, and self-directed. According to Prensky (2001) today's students are "digital natives" who naturally gravitate toward technology for communication, learning, and entertainment. Modern higher education institutions have increasingly integrated technology into their pedagogy through online courses, digital libraries, multimedia learning resources, and learning management systems (LMS). As a result, students use electronic gadgets not only for academic purposes but also for a wide array of extracurricular and recreational activities (Junco, 2012a). This dual-use dynamic has prompted educators and researchers to explore how gadget usage affects learning outcomes.

While many studies highlight the positive role of electronic gadgets in enhancing academic performance, others underscore the potential negative consequences of overuse or misuse. For instance, Salhab and Daher (2023) found that mobile devices improve learning by providing flexibility and access to vast information. Similarly, mobile applications support collaborative learning and allow students to engage in educational activities beyond the classroom (Crompton & Burke, 2018). Gadgets also promote independent learning and critical thinking by enabling students to explore concepts and conduct research on their own.

However, the benefits of electronic gadget use are not without limitations. Excessive use of gadgets, particularly for non-academic purposes, may hinder students' concentration and reduce study time. Research by Lepp et al., (2014) revealed that higher smartphone usage is negatively correlated with academic performance due to increased distractions and reduced engagement in academic tasks. Moreover, the frequent switching between academic and non-academic tasks, often referred to as "multitasking" can impair cognitive control and memory retention (Ophir et al., 2009). For university students preparing for careers in education, such distractions can undermine both their academic

preparation and their future effectiveness as educators.

The situation in Pakistan reflects global trends in technology integration and its consequences in academia. Pakistani university students increasingly rely on gadgets for communication, study, and entertainment. However, many lack structured guidance on appropriate usage, which may lead to inefficient study habits and declining academic performance (Ahmad et al., 2025). Teacher education students, such as those enrolled in the Bachelor of Education (B.Ed) programs, are particularly affected, as they must not only succeed academically but also acquire pedagogical skills for future teaching roles. Despite the critical importance of this issue, limited empirical research exists on how electronic gadget use affects the academic achievements of B.Ed students in Pakistan.

Particular this context, the current study aims to fill this research gap by investigating the impact of electronic gadgets on the academic achievements of B.Ed students. The study focuses on identifying patterns of gadget usage, determining their relationship with academic outcomes, and providing practical recommendations for enhancing academic performance through responsible technology use. By analyzing the perceptions and behaviors of pre-service teachers, this research contributes to the broader discourse on digital literacy and technology integration in teacher education.

In sum, while electronic gadgets hold great potential to enhance learning experiences, their unregulated use can lead to negative academic outcomes. This study is therefore both timely and necessary, as it addresses an under-researched area in the Pakistani educational context and offers insights that can inform institutional policies, teaching strategies, and student practices.

Background of the Study

In recent decades, the integration of technology into everyday life has significantly reshaped the educational landscape. The widespread availability and use of electronic gadgets, such as smartphones, tablets, laptops, and e-readers, have transformed how students interact with academic content, instructors, and their peers. These devices offer easy access to educational materials, facilitate virtual learning

environments, and support various instructional strategies that can enhance academic engagement and performance. As a result, electronic gadgets have become essential tools for students at all levels of education, particularly in higher education settings where self-directed and technologically mediated learning is common.

In the context of university education, gadgets play a multifaceted role. Students use them to search for information, prepare assignments, take notes, participate in online classes, and communicate with instructors, classmates, and access digital libraries. The emergence of mobile applications and online platforms such as Google Classroom, Microsoft Teams, Zoom, and educational YouTube channels has further encouraged the use of gadgets for academic purposes. According to Chaturanga and Jaysundara (2020) electronic gadgets can improve students' learning efficiency and promote flexible learning opportunities by providing access to resources beyond the confines of the classroom.

However, despite their numerous benefits, the growing dependency on gadgets also presents challenges that may adversely affect academic performance. Many students use their devices for non-academic purposes such as browsing social media, watching videos, gaming, and chatting, which can result in reduced concentration, procrastination, and poor academic discipline. According to a study by Lepp et al., (2014) excessive mobile phone usage has a negative correlation with students' academic performance due to frequent distractions and poor time management. These concerns are especially relevant for students who lack digital discipline or effective time-management skills.

In developing countries like Pakistan, the adoption of electronic gadgets in education has accelerated, particularly after the COVID-19 pandemic, which necessitated a shift to online and hybrid learning modes. Pakistani universities have increasingly embraced technology to continue academic activities during and after the pandemic. Nevertheless, this rapid integration has not always been accompanied by sufficient digital literacy training or awareness of responsible gadget use among students. As a result, many students face difficulties in balancing their academic and non-academic use of gadgets, which can negatively impact their academic achievements.

Fatima Jinnah Women University (FJWU), Rawalpindi, one of the leading institutions for women's higher education in Pakistan, offers programs that prepare future educators, including the Bachelor of Education (B.Ed). Students enrolled in the B.Ed program are expected to develop both academic and pedagogical competencies, many of which are supported through technology. However, no significant local study has been conducted to evaluate how the use of electronic gadgets influences the academic performance of these students. Understanding this relationship is critical, as these students will eventually become teachers and role models who will guide the next generation of learners. Known the increasing use of gadgets and the dual nature of their impact, it is important to investigate their influence in a localized context. This study seeks to explore how B.Ed students use electronic gadgets in their academic routines, how these devices impact their academic performance, both positively and negatively, and what strategies can be employed to maximize their educational value while minimizing distractions and misuse. The findings of this study will be valuable not only for students and faculty members but also for educational policymakers and curriculum developers. It will provide insights into the responsible and effective use of technology in teacher education and suggest ways to foster a balanced and productive academic environment in the digital age.

Statement of the Problem

In the current digital age, the use of electronic gadgets has become deeply embedded in the daily academic and personal lives of university students. Devices such as smartphones, tablets, and laptops are widely used for accessing educational resources, participating in online learning, and facilitating academic communication. While these gadgets offer significant potential for enhancing learning and improving academic outcomes, they also present challenges, particularly when used excessively or for non-academic purposes.

Recent studies have shown that although electronic gadgets can positively contribute to academic engagement and performance, they may also lead to distractions, reduced attention spans, poor time management, and academic underachievement when used irresponsibly (Lepp et al., 2014; Junco, 2012). In

the Pakistani context, the integration of technology into higher education has grown rapidly, but the lack of digital discipline and awareness among students raises concerns about its impact on academic success. B.Ed students are preparing to become future educators in an increasingly technology-driven educational environment. However, limited empirical research has been conducted to investigate how the use of electronic gadgets is influencing the academic achievements of these pre-service teachers. Without such data, it is difficult for educators, administrators, and policymakers to design effective strategies that promote the productive use of gadgets and minimize their potential harms.

Therefore, the problem this study seeks to address is the lack of empirical understanding regarding the extent to which electronic gadget usage affects the academic performance of B.Ed students at FJWU. This study aims to examine both the positive and negative aspects of gadget use, assess its relationship with students' academic outcomes, and propose recommendations to ensure responsible and effective integration of technology in teacher education.

Objectives of the Study

The main objective of this study is to investigate the influence of electronic gadgets on the academic achievements of university students, specifically B.Ed students at Fatima Jinnah Women University, Rawalpindi.

The specific objectives of the study are as follows:

1. To examine the purposes for which B.Ed students use electronic gadgets (academic vs. non-academic).
2. To analyze the relationship between electronic gadget usage and students' academic performance.
3. To explore the positive and negative effects of gadget usage on students' study habits, concentration, and time management.
4. To assess students' awareness and attitudes regarding responsible and effective use of electronic gadgets.

Significance of the Study

The findings of this study hold considerable significance for multiple stakeholders within the academic community, particularly in the context of teacher education in Pakistan. As the use of electronic

gadgets continues to grow among university students, understanding their impact on academic performance has become essential, especially for students enrolled in professional degree programs like the Bachelor of Education (B.Ed), who are being prepared to serve as future educators.

Firstly, the study is significant for students themselves, particularly those at Fatima Jinnah Women University, Rawalpindi. By shedding light on the positive and negative effects of electronic gadget use, the study will help students develop greater awareness about their own usage patterns. It will also guide them in adopting more responsible and productive behaviors in relation to technology, ultimately supporting their academic growth and professional readiness.

Secondly, the study is important for teachers, academic advisors, and university administrators. The insights gained from this research can assist educators in understanding how technology use influences students' learning outcomes, attention span, and study habits. This understanding will enable them to design instructional strategies and academic policies that encourage the responsible use of electronic devices while minimizing their distracting effects.

Thirdly, the study will be valuable for curriculum developers and policymakers involved in higher education and teacher training programs in Pakistan. By presenting empirical evidence from a local context, this study can support the integration of digital literacy and time-management components into the B.Ed curriculum. Such measures will help ensure that future educators are not only digitally competent but also equipped to guide their own students in using technology effectively in classrooms.

Furthermore, the study contributes to existing academic literature, particularly in the Pakistani context where research on this topic remains limited. It provides localized data and analysis on how electronic gadgets influence academic performance in female-only institutions, which is an underexplored area. The results may serve as a foundation for further research at other institutions or in comparative studies across disciplines.

In summary, this study is significant because it addresses a timely and relevant issue in higher education, particularly within teacher training. It offers practical recommendations that can enhance

academic success and technological responsibility among students, while also informing educators and decision-makers on how to better support digital engagement in university settings.

Research Questions

1. What types of electronic gadgets are most commonly used by B.Ed students?
2. For what purposes (academic or non-academic) do B.Ed students use electronic gadgets?
3. Is there a relationship between the frequency of gadget use and academic performance among B.Ed students?
4. How does the use of electronic gadgets affect students' concentration, study habits, and time management?

Theoretical Framework

The theoretical framework provides the foundation for understanding the variables and concepts under investigation and offers a lens through which the study can be interpreted. This study is grounded in the integration of theories from educational psychology and media studies to explore how electronic gadget usage affects the academic achievements of university students.

1. Uses and Gratifications Theory (UGT)

Developed by Katz et al., (1973) the Uses and Gratifications Theory explains how individuals actively choose and use media or technology to satisfy specific needs such as information, entertainment, social interaction, and academic utility. In the context of this study, B.Ed students use electronic gadgets for multiple purposes:

- **Academic:** Accessing online lectures, e-books, digital libraries, educational apps, and communication with instructors.
 - **Non-academic:** Engaging with social media, streaming videos, gaming, and entertainment.
- This theory helps explain why students use gadgets, what needs are being fulfilled, and how these motivations may influence their academic performance, either positively (by enhancing access to learning) or negatively (by causing distractions).

2. Cognitive Load Theory (CLT)

Proposed by Sweller (1988) Cognitive Load Theory suggests that learners have a limited amount of cognitive capacity for processing information. When this capacity is overloaded, such as by frequent multitasking between academic and non-academic applications on electronic gadgets, learning efficiency and academic performance may suffer. In the context of this study, excessive use of gadgets for non-academic purposes or the frequent switching between tasks (e.g., studying while using social media) can increase extraneous cognitive load, which in turn may hinder information retention and academic success.

3. Time Management Theory

Time Management Theory is also relevant to this study, as effective time use is directly linked to academic achievement. According to Macan (1994) students who manage their time well tend to perform better academically. Electronic gadgets can both aid (e.g., through scheduling apps, reminders) and hinder (e.g., through distractions like social media or games) time management. Thus, this theory helps frame the role of gadgets in students' academic time allocation.

4. Constructivist Learning Theory

Rooted in the work of Piaget and Vygotsky, Constructivist Learning Theory emphasizes the active role of learners in constructing knowledge through interaction with tools and environments. Electronic gadgets can serve as cognitive tools that support constructivist learning, such as accessing online simulations, collaborative learning platforms, and real-world problem-solving tasks. However, the benefit of these tools depends on how they are used, mindfully and for academic purposes, rather than passively or for distraction.

Literature Review

The rapid advancement of technology and the widespread availability of electronic gadgets have significantly influenced modern education. Devices such as smartphones, tablets, laptops, and e-readers have become essential tools for students at all educational levels. In higher education, particularly among university students, gadgets serve a dual role: as facilitators of academic activities and as sources of distraction. The impact of these devices on students'

academic achievements has attracted increasing scholarly attention, with studies yielding both supportive and cautionary findings.

Positive Educational Use of Gadgets

A growing body of research highlights the potential of electronic gadgets to support academic success when used appropriately. According to Salhab and Daher (2023) mobile learning technologies, when integrated effectively into educational settings, can enhance flexibility in learning, facilitate access to educational resources, and promote student engagement. Similarly, Crompton and Burke (2018) emphasize that mobile devices enable students to participate in personalized and self-paced learning, which is especially beneficial for diverse learning styles.

In their study on college students, Ahmed and Qazi (2011) found that electronic gadgets improve students' ability to conduct research, complete assignments, and communicate with peers and instructors. The widespread use of applications such as Google Scholar, online libraries, digital note-taking tools, and learning management systems has allowed students to interact more deeply with course content. For B.Ed students, who are future educators, such technological exposure is essential not only for academic success but also for professional development in integrating technology into teaching.

Gadget Use and Academic Performance

Despite the academic potential of gadgets, numerous studies caution against their excessive or unregulated use. Junco (2012) found a negative correlation between time spent on social networking platforms and grade point averages (GPA) among college students. Similarly, Lepp et al., (2014) reported that frequent mobile phone use was associated with decreased academic performance due to increased multitasking and reduced classroom engagement.

Ophir et al., (2009) argue that students who frequently switch between tasks, such as moving between educational apps and entertainment platforms, experience cognitive overload, which hampers learning and memory retention. This supports the cognitive load theory, which posits that the brain has limited capacity to process information simultaneously from multiple sources.

Moreover, studies have shown that the use of gadgets during lectures, especially for texting or social media, can significantly reduce concentration and impair note-taking quality (Wood et al., 2012). These findings are particularly relevant for teacher education students, as divided attention may impact both their academic learning and future instructional practices.

Gadget Usage Patterns among University Students

In the South Asian context, including Pakistan, researchers have explored gadget use trends among university students. A study by Chathuranga and Jaysundara (2020) conducted at a public university found that while most students used gadgets for academic purposes, a large percentage also admitted to using them for entertainment during study hours. The study revealed that poor time management and a lack of digital discipline often led to decreased academic performance.

Similarly, Ahmad et al., (2025) examined the influence of social media and mobile phone use on academic performance among Pakistani university students. The study found that students who used electronic gadgets primarily for academic purposes demonstrated better performance than those who used them mainly for recreational activities. However, it also highlighted the absence of structured policies or awareness programs regarding responsible gadget use.

Gadget Use in Teacher Education Programs

The use of electronic gadgets in teacher education programs is of particular importance because it directly influences the technological competencies of future educators. According to Tondeur et al. (2017) pre-service teachers who are exposed to effective technological integration during their training are more likely to incorporate ICT into their future classrooms. However, without clear guidelines, gadget use can become counterproductive. A study by Ertmer and Ottenbreit-Leftwich (2010) emphasizes the importance of modeling effective technology use during teacher training to ensure that students distinguish between productive academic use and non-academic digital behavior.

Despite the growing importance of digital tools in education, there remains a lack of research focusing specifically on B.Ed students and their gadget usage in

Pakistan. Most existing studies are general in scope, and few address the unique academic and professional demands of teacher education students. This gap in the literature underscores the need for the current study, which focuses on the impact of electronic gadget usage on the academic performance of B.Ed students.

Summary of the Literature Review

The literature provides clear evidence that electronic gadgets can serve as both academic enablers and potential obstacles, depending on how they are used. While they offer numerous benefits in enhancing access to knowledge, collaboration, and flexibility, their misuse can lead to distractions, cognitive overload, and academic underperformance. This dual nature of gadget use calls for more focused research, particularly in localized contexts such as Pakistani women's universities, to better understand and manage their role in higher education. The present study seeks to contribute to this area by providing empirical insights and practical recommendations that are specifically tailored to the needs of B.Ed students preparing for professional roles in education.

Research Methodology

This section outlines the methodology adopted for investigating the impact of electronic gadgets on the academic achievements of B.Ed students. The methodology has been carefully designed to ensure the reliability, validity, and relevance of the findings to the targeted educational context.

Research Design

This study employed a quantitative research design using the descriptive survey method. The quantitative approach was selected to enable the collection and analysis of numerical data to determine relationships between variables, specifically, the usage of electronic gadgets and academic achievement. A descriptive survey is appropriate for obtaining data from a large group of participants and identifying trends, behaviors, and perceptions (Creswell, 2014). The design is also suitable for generalizing findings to similar populations within the higher education context.

Population of the Study

The target population of this study consists of Bachelor of Education (B.Ed) students enrolled at Fatima Jinnah Women University, Rawalpindi, during the academic year 2024–2025. This population was chosen because B.Ed students are expected to become future educators and their attitudes and behaviors toward technology are likely to influence their academic and professional development.

Sample and Sampling Technique

A sample of 100 B.Ed students was selected using stratified random sampling to ensure proportional representation from different academic levels (e.g., first-year and final-year students). Stratified random sampling is a probability sampling method where the population is divided into distinct subgroups (strata) based on specific characteristics, such as semester or academic level, and a random sample is then drawn from each stratum (Creswell, 2014). Stratified sampling increases the accuracy and representativeness of the results, especially when the population includes subgroups with potentially varying characteristics (Fraenkel & Wallen, 2009). The sample size was deemed sufficient for descriptive and inferential statistical analysis based on similar educational research studies (Gay et al., 2012).

The use of stratified random sampling enhanced the credibility of the findings by ensuring that the perspectives of students across different stages of their academic program were adequately represented. This approach supports the generalizability of the results within the context of teacher education programs.

Instrumentation

The primary data collection instrument was a structured questionnaire developed by the researcher, based on a review of related literature (Junco, 2012; Lepp et al., 2014; Chathuranga & Jaysundara, 2020). The questionnaire consisted of three sections:

- Section A: Demographic information (age, academic year, GPA, etc.)
- Section B: Patterns and frequency of electronic gadget use (e.g., type of gadgets, daily screen time, academic vs. non-academic usage)

- Section C: Impact of gadget use on academic performance (measured using a 5-point Likert scale from Strongly Agree to Strongly Disagree)

Validity and Reliability

To ensure content validity, the questionnaire was reviewed by three experts in education and educational technology. Their feedback was used to refine the items for clarity and relevance. Pilot testing was conducted on a small group of 15 students who were not part of the main sample. Based on the pilot results, ambiguous items were rephrased or removed. To establish reliability, the internal consistency of the questionnaire was measured using Cronbach’s Alpha, which yielded a coefficient of 0.82, indicating a high level of reliability (Nunnally & Bernstein, 1994). This suggests that the instrument consistently measures students’ gadget use and its perceived impact on academic achievement.

Data Collection Procedure

By ensuring ethical considerations (informed consent, confidentiality, and voluntary participation), the researcher administered the questionnaire to the selected sample in-person during regular class sessions. The data collection process took place over two weeks in March 2025. Students were given sufficient time to complete the questionnaire, and assistance was provided when clarification was

needed. All responses were anonymous and kept confidential to encourage honest and unbiased participation. The completed questionnaires were collected, coded, and entered into SPSS for analysis.

Methods of Data Analysis

The collected data were analyzed using Statistical Package for the Social Sciences (SPSS) version 25. Both descriptive and inferential statistics were used: Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarize students’ gadget usage patterns.

Inferential statistics, specifically Pearson correlation and simple linear regression, were applied to determine the strength and direction of the relationship between electronic gadget use and academic performance.

The significance level was set at $p < 0.05$ to determine the statistical significance of the results. This analytical approach aligns with previous research in the field (e.g., Lepp, Barkley and Karpinski, 2014; Ahmad, Mohebi and AlMaghribi, 2025), helps identify meaningful relationships between variables.

Results and Interpretation

This section presents the analysis of the data collected from 100 B.Ed students. The data was analyzed using SPSS Version 25, and both descriptive and inferential statistics were employed.

Table 1: Descriptive Statistics on Frequency of Electronic Gadget Use

Variable	Mean	Standard Deviation	Minimum	Maximum
Daily Use of Gadgets (Hours)	5.80	1.65	2	10
Academic Use of Gadgets (Hours)	3.20	1.10	1	6
Non-Academic Use (Social Media, etc.)	2.60	1.30	0.5	5
GPA (Academic Achievement)	3.10	0.45	2.00	4.00

Interpretation:

Students reported spending an average of 5.8 hours per day using electronic gadgets. Of this time, 3.2 hours were dedicated to academic activities, while 2.6

hours were spent on non-academic use. The mean GPA of participants was 3.10 out of 4.00, indicating moderate to high academic achievement

Table 2: Correlation between Gadget Use and Academic Achievement

Variable	GPA
Academic Use of Gadgets	0.41 ($p < 0.01$)

Variable	GPA
Non-Academic Use of Gadgets	-0.36 (p < 0.01)
Total Gadget Use (Hours)	-0.10 (p = 0.28)

Interpretation:

A moderate positive correlation ($r = 0.41, p < 0.01$) was found between academic use of gadgets and GPA. This suggests that students who use gadgets more for academic purposes tend to achieve higher academic results.

A moderate negative correlation ($r = -0.36, p < 0.01$) exists between non-academic gadget use and GPA,

indicating that excessive use of gadgets for entertainment or social media negatively impacts academic performance.

The total hours of gadget use had no significant correlation with GPA ($r = -0.10, p = 0.28$), emphasizing that how gadgets are used matters more than how long they are used.

Table 3: Regression Analysis – Predicting GPA Based on Gadget Use

Predictor Variable	B	Standard Error	Beta	t-value	p-value
Academic Gadget Use	0.215	0.060	0.42	3.58	0.001
Non-Academic Gadget Use	-0.181	0.072	-0.38	-2.51	0.014
Constant	2.50	0.32	–	7.81	0.000

Interpretation:

The regression analysis indicates that:

Academic gadget use is a significant positive predictor of GPA.

Non-academic gadget use is a significant negative predictor of GPA.

The overall model explains a significant proportion of variance in students' academic performance ($R^2 = 0.27$), meaning about 27% of academic achievement can be predicted based on gadget usage patterns.

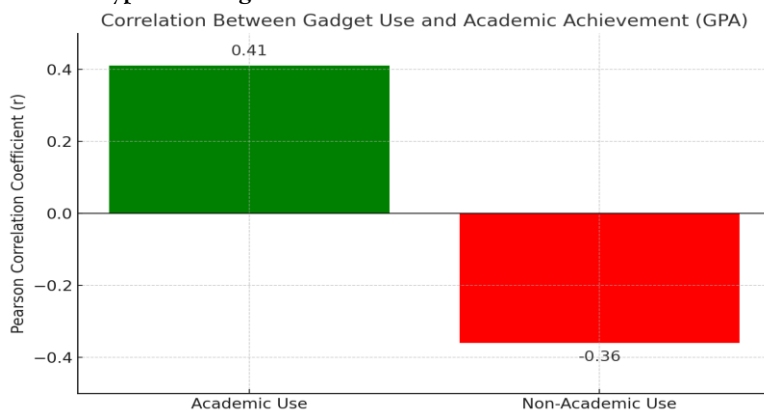
Summary of Findings:

Moderate use of gadgets for academic purposes is positively associated with higher academic performance.

Excessive non-academic usage (social media, gaming, etc.) negatively affects academic results.

The type of usage (academic vs. non-academic) has a greater impact than the total time spent using gadgets.

Figure 1: Correlation between Type of Gadget Use and Academic Achievement



Academic Use of gadgets shows a positive correlation with GPA.

Non-Academic Use (e.g., social media, gaming) shows a negative correlation with GPA.

Figure 1 shows the correlation coefficients between two types of electronic gadget use (academic and non-academic) and students' academic achievement (measured by GPA). A positive correlation ($r = 0.41$) is observed for academic use, while a negative correlation ($r = -0.36$) is evident for non-academic use.

Interpretation:

Academic use of gadgets (e.g., using laptops for assignments, accessing online lectures) supports better academic outcomes, as indicated by the positive correlation.

Non-academic use of gadgets (e.g., excessive social media, video streaming, or gaming) is associated with a decline in GPA, shown by the negative correlation. These findings underscore the importance of purposeful gadget use in promoting academic success.

Discussion

The present study aimed to explore the impact of electronic gadgets on the academic achievements of university students, focusing specifically on B.Ed students. The findings provide valuable insights into the dual role that electronic gadgets can play in shaping academic outcomes, either as tools of academic enhancement or sources of distraction.

Gadget Usage Patterns and Academic Achievement

Descriptive analysis showed that students, on average, spent 5.8 hours per day on electronic gadgets, with approximately 3.2 hours dedicated to academic purposes and 2.6 hours to non-academic uses such as social media, entertainment, and communication. These findings align with those of Lepp et al., (2014); Vaghela et al., (2020) found that college students often spend a substantial portion of their day on mobile devices, with academic and non-academic tasks competing for time.

The positive correlation found between academic use of gadgets and GPA ($r = 0.41$, $p < 0.01$) supports earlier research by Junco, (2012); Ofodu and Ekwueme, (2024) concluded that educational use of digital platforms, such as learning management

systems (LMS), online research databases, and e-books, can enhance student engagement and performance. Similarly, Liang et al., (2024); Abduljawad and Ahmad (2023) argue that mobile learning has revolutionized access to academic materials, enabling students to learn flexibly and efficiently. In this study, students who utilized gadgets for activities such as accessing online lectures, conducting academic research, and managing assignments performed better academically.

On the other hand, the negative correlation between non-academic gadget use and GPA ($r = -0.36$, $p < 0.01$) corroborates findings from Jacobsen and Forste, (2011); Sanjay et al., (2025) reported that frequent use of mobile devices for non-academic purposes was associated with lower GPAs and reduced academic productivity. The present study supports these claims, as students who reported higher engagement with social media, video streaming, and gaming had comparatively lower academic performance. These distractions may reduce students' focus, lead to procrastination, and limit time available for study (Alotaibi, 2025).

Moreover, regression analysis revealed that both academic and non-academic usage significantly predicted GPA outcomes, explaining approximately 27% of the variance. This suggests that while other factors (e.g., motivation, study habits, family background) also contribute to academic success, electronic gadget use plays a meaningful role. This is consistent with the findings of Karpinski et al. (2013); Arizmendi et al., (2023) highlighted that digital behaviors are among the top predictors of academic success and failure in modern learning environments.

Balancing Technology Use: A Critical Concern

While electronic gadgets are integral to contemporary education, their misuse can be detrimental. Chathuranga and Jaysundara (2020) and Odudu (2024) in studies on university students, emphasized that digital tools should be viewed as "double-edged swords" beneficial for academic efficiency, yet potentially disruptive when used excessively for leisure. The current study reinforces this view and urges a balanced approach toward gadget use among students.

Additionally, the finding that total gadget use time did not significantly correlate with academic achievement

($r = -0.10$, $p = 0.28$) is notable. It suggests that the purpose of gadget use matters more than the total time spent. This supports Ellis et al., (2010) and Feng et al., (2025) observed that it is not screen time per se that affects performance, but the type of activities conducted during that time. Productive use, such as watching educational videos or joining online study groups, can enhance learning, while time spent passively browsing or multitasking on social media can impair retention and focus.

Conclusion

The current study explored the complex relationship between the use of electronic gadgets and the academic achievements of B.Ed students. With the proliferation of digital technologies in higher education, understanding how these tools influence student learning outcomes is increasingly important. This research provides empirical evidence that while electronic gadgets are integral to modern education, their impact on academic achievement is significantly influenced by how they are used.

Findings from the study revealed that students who used electronic gadgets primarily for academic purposes, such as accessing course materials, attending virtual classes, and conducting online research, tended to perform better academically. In contrast, those who used gadgets extensively for non-academic purposes, such as social media engagement, video streaming, and online gaming, exhibited lower academic performance. This distinction highlights the idea that the quality and intent of gadget use, rather than the quantity alone, determines its effect on educational success.

Statistical analysis showed a moderate positive correlation between academic gadget use and GPA, indicating that purposeful integration of technology can enhance students' learning experiences. Conversely, a moderate negative correlation between non-academic gadget use and academic achievement confirmed concerns raised by educators and researchers about the distracting nature of unregulated digital engagement. These outcomes are consistent with prior research conducted by Junco (2012); Jacobsen and Forste, (2011); Lepp et al., (2014) emphasized the dual-edged nature of technology in education.

The regression analysis further supported these findings by showing that academic and non-academic gadget usage were both significant predictors of GPA, accounting for approximately 27% of the variance in academic performance. This highlights that while other factors (such as motivation, study skills, and institutional support) certainly play a role in academic success, gadget usage behaviors form a crucial, modifiable determinant.

This study contributes to the growing body of literature advocating for digital responsibility among students and technology-guided learning environments in higher education. For teacher education programs like the B.Ed, where future educators are trained, and the implications are especially critical. It becomes essential to equip students not only with pedagogical knowledge but also with digital literacy and time-management skills to optimize the benefits of electronic gadgets while minimizing their drawbacks.

In conclusion, electronic gadgets hold substantial potential to support academic success when used appropriately. Universities, educators, and students must collaboratively develop strategies to foster intentional, academic-centered use of technology, rather than allowing it to become a source of distraction. The findings suggest a need for institutional initiatives such as workshops on digital discipline, integration of e-learning platforms, and regular monitoring of screen-time behaviors. Ultimately, the goal is to empower students to use digital tools as assets for learning rather than obstacles to achievement.

Implications for Educational Practice

These results have important implications for educators and academic institutions. There is a clear need to promote digital literacy among students, not just the ability to use gadgets, but the ability to use them responsibly and effectively. As suggested by Spante et al., (2018), integrating digital discipline modules into teacher training programs can help future educators manage their own technology use and guide their students accordingly.

Furthermore, institutions can play a proactive role by:

- Incorporating e-learning tools more effectively in the curriculum.
- Offering workshops on time management and digital balance.
- Developing campus policies that limit gadget-related distractions during class hours.

Limitations and Future Research Directions

While this study offers valuable insights, certain limitations must be acknowledged. First, the sample was limited to B.Ed students at a single institution, which may affect the generalizability of the results. Second, self-reported data on gadget use may be subject to recall bias. Future research could involve a longitudinal design or include screen-time tracking apps for more objective data collection.

Moreover, future studies could explore gender-based differences, the impact of specific platforms (e.g., TikTok vs. WhatsApp), or the influence of online learning tools such as Google Classroom and Zoom on student learning outcomes.

Recommendations

Based on the findings of this research, the following recommendations are proposed for students, educators, and university administrators to optimize the use of electronic gadgets for academic benefit and minimize their adverse effects:

1. Promote Purposeful Use of Electronic Gadgets

Students should be encouraged to prioritize the use of electronic gadgets for academic tasks such as accessing course materials, conducting research, participating in online classes, and using learning management systems. Awareness campaigns and orientation sessions can be held to demonstrate the effective use of academic apps and digital resources.

2. Conduct Workshops on Digital Literacy and Self-Regulation

Universities, especially teacher education departments, should regularly organize digital literacy and time management workshops. These workshops should aim to train students on how to manage screen

time, avoid distractions from non-academic content, and make informed decisions about technology use.

3. Implement Institutional Policies to Monitor and Guide Gadget Use

The institutions should consider developing policies that support structured gadget use in academic settings. These policies may include:

- Guidelines for mobile and laptop use during lectures.
- Encouragement of “tech-free” study hours or zones.
- Faculty-led initiatives to integrate gadgets meaningfully into pedagogy.

4. Encourage Faculty to Integrate Digital Tools into Teaching

Educators should be provided with training and support to incorporate educational technology effectively into classroom instruction. This includes using e-learning platforms, video lectures, virtual assessments, and collaborative tools that keep students engaged in productive gadget use.

5. Develop Monitoring Systems and Feedback Mechanisms

The institutions can benefit from developing systems to track digital behavior, for example, anonymous surveys or self-monitoring tools to help students assess their gadget usage patterns. Feedback based on such assessments can inform improvements in learning strategies and digital habits.

6. Foster Peer Mentorship and Student Support Systems

Peer mentoring programs can be initiated where senior or high-achieving students guide their peers in adopting effective study practices, including the wise use of gadgets. This peer-to-peer interaction can help students share techniques for reducing digital distractions.

Recommendations for Further Research

The limited scope of the current study (B.Ed students at a single university), future research should be conducted:

- Across multiple disciplines and institutions.

- With larger and more diverse samples.
- Using mixed-method or longitudinal approaches to explore long-term impacts.

REFERENCES

- Abduljawad, M., & Ahmad, A. (2023). An analysis of mobile learning (M-Learning) in education. *Multicultural Education*, 9(2), 145-152.
- Ahmad, D., Mohebi, L., & AlMaghribi, F (2025). *Effects of Social Media Usage with Academic Performance of University Students: A Comparative Study of UAE and Pakistan*.
- Ahmed, I., & Qazi, T. F. (2011). Mobile phone adoption & consumption patterns of university students in Pakistan. *International Journal of Business and Social Science*, 2(9), 205-213.
- Alotaibi, N. B. (2025). Exploring the impact of factors on mobile learning adoption and academic performance: A study of undergraduate students in Riyadh region universities, Kingdom of Saudi Arabia. *Education and Information Technologies*, 30(8), 11185-11221.
- Arizmendi, C. J., Bernacki, M. L., Raković, M., Plumley, R. D., Urban, C. J., Panter, A. T., & Gates, K. M. (2023). Predicting student outcomes using digital logs of learning behaviors: Review, current standards, and suggestions for future work. *Behavior research methods*, 55(6), 3026-3054.
- Chathuranga, M. M. N., & Jaysundara, J. M. D. P. (2020). Impact of smartphone usage on academic performance: a study on undergraduates in FMSC of University of Sri Jayewardenepura, Sri Lanka. *Journal of Management*, 15(1).
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications.
- Crompton, H., & Burke, D. (2018). The use of mobile learning in PK-12 education: A systematic review. *Computers & Education*, 123, 53-64.
- Ellis, Y., Daniels, B., & Jauregui, A. (2010). The effect of multitasking on the grade performance of business students. *Research in Higher Education Journal*, 8, 1-10.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284.
- Feng, X., Ren, S., & Shi, P. (2025). The relationship and mechanism of screen time and academic performance among adolescents: an empirical study based on CEPS. *Frontiers in Public Health*, 13, 1533327.
- Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education* (7th ed.). McGraw-Hill.
- Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). *Educational Research: Competencies for analysis and applications* (10th ed.). Pearson.
- Jacobsen, W. C., & Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students. *Cyber Psychology, Behavior, and Social Networking*, 14(5), 275-280.
- Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, 58(1), 162-171.
- Junco, R. (2012a). Too much face and not enough books: The relationship between multiple indices of Facebook use and academic performance. *Computers in Human Behavior*, 28(1), 187-198.
- Karpinski, A. C., Kirschner, P. A., Ozer, I., Mellott, J. A., & Ochwo, P. (2013). An exploration of social networking site use, multitasking, and academic performance among United States and European university students. *Computers in Human Behavior*, 29(3), 1182-1192.
- Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *The public opinion quarterly*, 37(4), 509-523.

- Lepp, A., Barkley, J. E., & Karpinski, A. C. (2014). The relationship between cell phone use, academic performance, anxiety, and satisfaction with life in college students. *Computers in Human Behavior*, 31, 343–350.
- Liang, Y., Huang, H., Ding, Y., Zhang, Y., Lu, G., & Chen, C. (2024). The relationship between self-esteem and mobile phone addiction among mainland Chinese adolescents: A meta-analysis. *Psychological Reports*, 127(1), 5-39
- Macan, T. H. (1994). Time management: Test of a process model. *Journal of applied psychology*, 79(3), 381.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Odudu, Q. (2024). Technological solutions for protecting children from online predators: current trends and future directions. Available at SSRN.
- Ofodu, P. N., & Ekwueme, L. O. (2024). Enhancing Learners' Engagement and Performance in Learning through E-Resources and Services: National Open University of Nigeria Students as Beneficiaries. *West African Journal of Open and Flexible Learning*, 12(2), 201-224.
- Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences*, 106(37), 15583–15587.
- Prensky, M. (2001). *Digital natives, digital immigrants*. On the Horizon, 9(5), 1-6.
- Salhab, R., & Daher, W. (2023). The impact of mobile learning on students' attitudes towards learning in an educational technology course. *Multimodal Technologies and Interaction*, 7(7), 74.
- Sanjay, M., Manikandan, S., Kandharaj, M., & Mervin, M. M. (2025, April). Impact of Excessive Mobile Phone Usage on Physical Well-Being and Academic Performance among College Students. In 2025 3rd International Conference on Artificial Intelligence and Machine Learning Applications Theme: *Healthcare and Internet of Things* (AIMLA) (pp. 1-6). IEEE.
- Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent education*, 5(1), 1519143.
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12, 257-285
- Tondeur, J., Van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. *Educational technology research and development*, 65(3), 555-575.
- Vaghela, M., Sasidhar, K., & Parikh, A. (2020). An Experimental Study of Mobile Phone Impact on College Students. In *ICT Systems and Sustainability: Proceedings of ICT4SD 2019*, Volume 1 (pp. 225-234). Singapore: Springer Singapore.
- Wood, E., Zivcakova, L., Gentile, P., Archer, K., De Pasquale, D., & Nosko, A. (2012). Examining the impact of off-task multi-tasking with technology on real-time classroom learning. *Computers & Education*, 58(1), 365–374.