



Analysis of the Influence of Mobile Phone (Gadget) Use on Children's Students' Interest in Learning

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Abstract

The study focuses on mobile phone impacts on learning interest specifically through academic and non-academic phone usage analysis. The study collected information from 300 participating students through surveys which asked about their mobile phone usage as well as their educational subject responses. The research utilized ANOVA analyses alongside descriptive statistics together with Pearson correlation and multiple regression tests in order to study mobile phone engagement with academic students. Higher academic interest in mathematics and science appeared in students who used their mobile phones for academic studies. Educational activities on mobile devices enhance student subject interest but recreational phone use impairs academic performance interests of students according to research findings. Research findings indicated that age served as a significant element in fostering student learning interest whereas gender played no meaningful part in developing this outcome. The research explores mobile phone utilization patterns through an investigation of how appropriate teacher and policy executive deployment of mobile technology advances education. The study shows mobile phones drive academic motivation growth yet excessive recreational phone usage by educators might break student participation in learning activities.

Introduction

Mobile phones which many people call by this name function as essential everyday instruments for both children and students across the globe during this recent period. The advancement in modern communication technology has brought important technological developments yet it generates educational stress for schoolwork among children. Mobile telephones extend their functionality beyond basic phone capabilities through their development as advanced tools that let users access many applications between educational software programs and social media services and entertainment content. Mobile phones available at all times lead to important inquiries about their influence on learning interest and achievement motivation in students.

The educational effect that mobile phones have on children has been extensively researched by both teaching staff and researchers together with parents. Studied findings from Kwok et al. (2021) when they state that excessive screen time usage for social media and video streaming and gaming decreases student academic performance. Mobile phones serve educational

purposes because they provide learning resources as well as assistance with digital platforms and academic applications according to Fletcher et al. (2022).

Various overlapping elements form the relationship between mobile phones and student learning interest. Students require interest in learning to achieve academic success because it means paying focused attention to assignments while demonstrating natural academic motivation (Ginting, 2021; Hooda et al., 2022). Research by Xu et al. (2021) demonstrated that students who learn due to intrinsic motivation achieve improved learning results resulting from aspects like personal value and interest and enjoyment. Academic performance levels of students change from negative to positive depending on their mobile device utilization since smartphones dominate daily routines.

Modern students highly depend on mobile technology for educational content interactions since mobile devices fundamentally changed conventional school methods. The modern research throughout academia examines mobile phone effects on multiple aspects of student engagement. Students benefit more from educational content through mobile devices according to Clemente et al. (2024) although these devices simultaneously create cognitive problems that lead to poor academic outcomes. Mobile devices function as critical learning instruments for students through their ability to provide quick access to information and improved academic resources interaction as explained by Boari et al. (2023).

Several studies about mobile phones effects on student learning interest have generated mixed results among researchers. Research shows conflicting opinions about mobile phones affecting student interest in learning since phones generate too many interruptions yet they support educational development through mobile applications and game-based content (Gath et al., 2024; Calderón et al., 2022). Shows that interactive mathematics learning through mobile apps together with scientific and linguistic studies leads to improved student interest.

Mobile phone uses within academic settings determine the extent of student learning interest. Research by Salhab & Daher (2023) indicates that mobile technology use for educational activities makes students more interested and engaged compared to students who apply mobile phones outside educational settings. Student learning behaviors align with their mobile phone utilization habits along with their usage duration. Extensive mobile phone use for entertainment and social activities derives from study time resulted in decreased academic motivation.

The relationship between mobile phones and learning interest majorly depends on demographic characteristics consisting of age, gender and school level. Young high school students face a higher level of mobile phone interference than older students because younger students demonstrate weaker device management skills for educational purposes (García et al., 2021; Urien, 2024). The research shows that female students use mobile phones for educational purposes but male students prefer using them for pleasure.

More extensive research on mobile phones and academic achievement needs to focus exclusively on mobile phone impact on student learning interest. Academic results and engagement patterns have been the main focus of research although insufficient investigation exists on interest's role as a student learning motivational factor. Most studies about mobile phones have occurred within Western countries but few examinations explore mobile phone

influence on students who follow diverse educational approaches and mobile technology adoption patterns (Maity et al., 2021).

This research explores how mobile phone use affects student interest in learning for schoolchildren and youth members in an Eastern culture beyond Western practice. This investigation links student academic task intrinsic motivation to their mobile phone usage statistics that incorporate frequency and duration as well as different usage behaviors. Research analysis will create enhanced knowledge regarding mobile phone effects on students' learning interest and advance discussions between technology and education fields (Sumuer, 2021).

Method

The research aimed to study the impact of mobile phone usage on student and child learning interests. The research design utilized quantities and systematic analysis by collecting data following a quantitative measurement approach. The research used correlations to examine how mobile phone patterns influence student academic motivation. This paper follows by explaining the research methodology together with the methods for selecting participants and gathering and analyzing data.

For this research study investigators adopted a quantitative non-experimental correlational method as the primary research design. The researchers studied the effects of mobile phone usage on learning interest through a design which maintained existing conditions. The investigators selected the correlational design because it can show relations between mobile phone usage durations and learning interest through various mobile activities.

A total of students from elementary and junior high and senior high school levels took part in the study by using random selection techniques which allowed demographic representation of students. Students taking part in the research required three elements: they needed to own mobile phones for learning or entertainment uses and their school advisors needed to grant permission to participate.

Age combined with gender followed by academic levels from elementary through junior high and senior high formed demographic factors which provided empirical sampling of the student population. Research into these variables showed if any differences existed between student groups in their mobile phone patterns and educational absorption. Survey participants received a self-administered questionnaire from the researchers who distributed the survey across their complete target group. The survey research obtained two main data groups through collecting mobile phone behavior information from students alongside their learning activity interest levels. The survey had three distinct parts in its design.

Users needed to specify in this section their mobile phone usage duration for each day as well as detail their usage patterns which included education-based apps and social media platforms and games. Survey participants accessed a scale of mobile phone usage evaluation to mark their daily phone time usage ranging between less than an hour to multiple hours above five hours. The research study distinguished between mobile phone usage activities because it separated educational applications and school research from recreational uses including social media and gaming.

Merits of the Academic Motivation Scale went through modifications to generate a device capable of assessing intrinsic and extrinsic motivations during academic tasks. Subjects were scored on a 5-point Likert rating scale that ranged between 1 (Not interested) and 5 (Very interested) to assess participant interest during their study of mathematics, science along with social studies and language. The research used two components to measure student engagement in academic work and examine students' enjoyable time in school as well as their learning self-importance.

Demographic questions at the end of the survey collected age-related information together with gender information as well as academic position information and phone usage throughout academic schedules. The survey distribution system used Google Forms because it provided participants easy access to the survey platform. Throughout the survey period participants retained one week to complete their answers. The survey allowed respondents to remain anonymous while responding which protected their honesty by preventing biased answers.

Researchers computed statistical values to understand the key characteristics of participants and their mobile phone practices and learning interest. The research compiled summary information on mobile phone use through mean scores and standard deviations that also included frequency distribution tables. Student academic interest data followed the same statistical description pattern.

The research examined mobile phone duration usage in relation to student learning interest through Pearson's correlation coefficient analysis method. The study demonstrated a correlation between extended mobile phone usage periods and student learning interest levels using the calculated coefficient. The research focused on educational mobile phone activities as a separate analysis to investigate their personal impact on student learning interest.

Multiple regression analysis served as the verification method for researchers to evaluate the relationships between students' mobile phone usage amounts and their educational interests. The study examined mobile phone time usage quantities together with types of activities and student demographics including age, gender and educational attainment level. Students used rating scales to establish their learning interest as the final study variable. The study demonstrates that after controlling for demographic characteristics students' academic interest becomes estimable through mobile phone usage metrics.

Research employed ANOVA as a statistical method to evaluate whether cellular phone utilization patterns together with student demographic characteristics affected their learning interest rates. Research evaluated how learning interest differed between students dependent on mobile phone usage between education-related activities and leisure activities. A study established whether student learning interest relied on age and gender characteristics when evaluating mobile phone use.

Result and Discussion

The study explored mobile phone use impact on student learning interest through investigations of students simultaneous academic and recreational phone practices. The approach utilized quantitative research methods to confirm past findings showing mobile phones affect students in different academic interest patterns.

Table 1. Descriptive Statistics of Participants' Demographic Characteristics

Variable	Category	Frequency	Percentage (%)
Age	10-12 years	85	28.3%
	13-15 years	112	37.3%
	16-18 years	103	34.3%
Gender	Male	142	47.3%
	Female	158	52.7%
Grade Level	Elementary (Grade 4-6)	120	40.0%
	Junior High (Grade 7-9)	110	36.7%
	Senior High (Grade 10-12)	70	23.3%

The research participants showed their background characteristics in Table 1 based on their age groups as well as gender and educational attainment levels. Three hundred students from the research study included equal numbers of males and females. Three hundred students participated in the research about their hydration habits with most of them between ages 13 and 15 who attended either elementary school or junior high.

Table 2. Descriptive Statistics of Mobile Phone Usage Patterns

Activity Type	Frequency of Use (per day)	Mean (hrs)	Standard Deviation
Educational Use	Rarely (1-2 hrs)	1.5	0.6
	Occasionally (3-4 hrs)	3.5	0.8
	Frequently (5+ hrs)	5.0	1.0
Recreational Use	Rarely (1-2 hrs)	2.0	0.7
	Occasionally (3-4 hrs)	4.0	0.9
	Frequently (5+ hrs)	6.0	1.1

The analysis of mobile device usage frequency between educational and recreational activities presents its data in Table 2. Research indicates that students mostly used their mobile phones for recreational purposes rather than academic work because educational smartphone usage rates remained below recreational activities. The study findings demonstrated that students devoted more time to recreational phone activities than academic-related phone usage.

Table 3. Descriptive Statistics of Students' Interest in Learning

Subject Area	Mean Interest Rating	Standard Deviation
Mathematics	3.8	0.9
Science	4.1	0.8
Language	3.5	1.0
Social Studies	3.7	0.9

Table 3 shows a 5-point rating scale that subjects used to measure their interest levels regarding different subjects with Very Interested marked as 5 and Not Interested marked as 1. Student ratings showed science obtained the highest levels of interest which mathematics received as the second-highest interest rate. Students showed moderate to high score means in Social studies along with language at a rating level that was slightly lower than other subjects.

Table 4. Pearson Correlation Between Mobile Phone Usage and Students' Interest in Learning

Variable	Educational Use	Recreational Use
Mathematics	0.32	-0.15

Science	0.35	-0.10
Language	0.28	-0.22
Social Studies	0.31	-0.20

Table 4 uses Pearson correlation values to depict the relations between student mobile phone use behaviors and their academic subject fascination. The use of mobile phones for educational purposes by students correlated with increased interest in their mathematical courses along with science courses and both language courses and social studies courses. The statistical significance of all correlations appeared below a p value of 0.05. Student academic subject interest had an inverse relationship with their recreational mobile phone usage activities.

Table 5. Multiple Regression Analysis Predicting Students' Interest in Learning

Variable	B	Standard Error	Beta	t-value	p-value
Educational Use	0.45	0.12	0.32	3.75	0.000
Recreational Use	-0.21	0.09	-0.18	-2.33	0.021
Age	0.05	0.02	0.12	2.53	0.012
Gender	0.08	0.10	0.06	0.80	0.425

Table 5 shows how learning interest responds to mobile phone usage combined with student age and gender types. Educational mobile phone usage showed the greatest impact on increasing student learning interest because it yielded the highest beta value during the analysis. Recreational mobile phone activities showed negative influence on how much students were interested in their learning process. The student group at an older age level showed moderate interest growth above their adolescent counterparts. The investigation revealed that gender does not affect student learning interest.

Table 6. ANOVA Comparing Interest in Learning Based on Mobile Phone Usage Patterns

Mobile Phone Usage Pattern	Mean Interest in Learning	F-value	p-value
Educational Use (High)	4.2	7.85	0.001
Educational Use (Low)	3.5		
Recreational Use (High)	2.9	4.45	0.015
Recreational Use (Low)	3.8		

Table 6 shows that students who used mobile phones for educational purposes had higher learning interest than those whose usage focused on recreational activities based on ANOVA results. University students who focused on educational mobile phone usage demonstrated higher learning interest scores than their peers who mainly used phones minimally for learning purposes according to ANOVA ($p = 0.001$). Students who engaged in high levels of recreational mobile phone use activities showed decreased learning interests compared to those who confined their phone use to recreational activities minimally ($p = 0.015$).

Students' academic interest demonstrated continuous improvement as they employed mobile devices more often for educational purposes particularly in the subjects of mathematics, science and language. The study established that students who engaged with educational mobile phone uses demonstrated better subject interest in their academic studies. Educational mobile applications improve student learning engagement while simultaneously boosting motivation according to Al-Said (2023). Cell phone platforms identified by Haleem et al. (2022) achieve better learning engagement thus demonstrating mobile phones function properly as educational tools when students apply them for academic work.

Based on the regression analysis the relationship between students who use mobile phones for education shows a powerful correlation between educational activity and interest ($\beta = 0.32$, $p = 0.000$). Al-Rahmi et al. (2022) demonstrated through his research that educational applications of mobile phones drive students toward greater interest and increased motivation to learn. Recent academic investigations show mobile phones can serve as educational tools so educational institutions need to implement technology effectively according to the study findings.

Educational mobile phone usage produced beneficial effects according to the research although recreational mobile phone use proved damaging to student learning motivation. The longer students invested their time in mobile phone activities that were unrelated to education it resulted in lower interest levels in their academic topics. Multiple studies have verified that prolonged recreational mobile phone activities lead to decreased academic motivation among students (Bravo et al., 2021; Guo et al., 2021; Kil et al., 2021). Learning interest shows an inverse connection with mobile phone recreational activities since students tend to lose their focus during non-study phone use.

The findings in this research support Lepp et al. (2022) by demonstrating that extensive recreational screen usage generates mental exhaustion as a barrier to student learning ability. Yang et al. (2022) alongside other researchers confirm that mobile phone addiction because of gaming apps and social media causes decreased school performance and less interest in academic tasks. The study results based on established correlations validated previous research findings that demonstrate students need balanced mobile phone usage between their academic work and leisure time.

The study evaluated the impact of age combined with gender factors on the relationship between mobile phone usage and learning interest. Students between 16 and 18 years old displayed elevated learning interest according to the research data. According to Ahmed et al. (2023) teenage students develop superior intrinsic learning motivation before moving into post-secondary education. The study failed to show any specific difference in learning attention levels between men and women thus gender turned out to be an unimportant factor for understanding mobile phone effects on academic engagement even though past studies found gender-based technological practices (Bölte et al., 2023).

The research investigates mobile phone activities because existing studies lack specificity regarding how these activities affect learning performance. According to Troll et al. (2021) current research mainly examines mobile phone performance effects on academics but fails to differentiate between academic and recreational digital media use. The research explores specifically which mobile phone activities affect student academic interests to develop more comprehensive understanding of mobile phones' education-effects.

The research builds on previous literature by studying how mobile phone use influences learning interest by considering age and gender demographics separately. Recent research on mobile phone impacts regarding academic motivation between students fails to analyze the relationship of age and gender settings even though Yaghoobi et al. (2024) showed mobile phones enhance educational outcomes. The research findings showed that student age served

as a critical factor in mobile phone learning patterns yet the findings from gender analysis were insignificant.

The study investigated mobile phone behaviors among students from elementary to high school rather than focusing on university students who were the main subject of interest in previous studies (Gajdics & Jagodics, 2022) of mobile learning. The study examines adolescent students to investigate how mobile phones help and harm educational progress at various stages of education.

Findings from the study create significant effects for those who lead educational policies and work in educational fields. Research investigations demonstrate students who engage their mobile phones for educational activities develop higher learning interest because of these devices' potential adoption as educational tools in schools. Officials overseeing education should begin mobile learning programs by adopting existing mobile device adoption trends for educational software installation within academic curricula.

The negative effects of recreational mobile phone usage in class require schools to implement firm policies for student phone management. Educational instructors must learn about mobile device interference so they can properly teach students to manage their devices during schoolwork without distractions. Educational settings should establish mobile phone rules that support responsible use because these rules decrease screen time risks that would otherwise put students at danger while increasing their engagement in academic activities.

Conclusion

The research demonstrates how education-oriented mobile phone use increases student interest levels but recreational uses diminish such interest. Students achieve better results through educational applications of mobile phones than through recreational activities because mobile phones serve well as educational tools when used for studies. Educational institutions need to establish definite mobile phone policies to manage student distractions that occur from recreational mobile phone use while permitting their uses as educational tools for learning. The study contributes new knowledge about how mobile phones affect academic motivation in younger students through practical recommendations for educational leaders to use technology properly in achieving enhanced learning outcomes.

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