International Journal of Research Publication and Reviews

Smartphone Use and Academic Performance of Students in Tertiary Education

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A B S T R A C T

The purpose of this study is to empirically examine the impact of smartphone usage and the academic performance of tertiary students in a developing country. Today smartphones have become part of our modern lifestyle. So, it has raised concerns about how the integration of smartphones into education may cause distraction and academic performances of students. The research employs a quantitative approach to gather data from respondents. The findings of the study say all participants own a smartphone. They mostly use smartphones for messaging and socializing. More than 70% of respondents use smartphones positively to learn new words, access course information, and read course material. On the contrary, they use phones during lectures to check notifications and use WhatsApp. Excessive smartphone use can hinder students' attention, increase distraction, and reduce study time. Ultimately it will impact their academic performances. To mitigate these negative effects, educational institutes, parents, and students themselves must work together to establish guidelines for responsible smartphone use and promote a balanced approach to technology integration in the learning process.

Keywords: Smartphone use, academic performance, students, tertiary education

Introduction

Today world is in an "age of information" which is more complete, complex, and accessible. With the proliferation of smartphones, individuals can perform and access new kinds of functions and entertainment that were not believed ten years ago. As a result, smartphones have become indispensable companions in daily life rather than mere communication devices. As a result, one of the domains significantly impacted by the ubiquity of smartphone is education. So, we have to look at how students strike a balance between academic performance and digital distraction, especially within tertiary institutes. So, concerns arise regarding the potential effects of smartphones on academic performance because it is flawlessly integrated into the campus life of students.

The relationship between smartphones and academic performance among tertiary students has gained increasing attention and interest in the research field. Although smartphones are incredibly useful for information access, communication, and productivity, they also create several distractions that can divert students' attention from their studies. social media, entertainment apps, and instant messaging platforms will hinder students' time and cognitive resources creating challenges to focus on academic tasks.

Having a clear understanding of the intricate relationship between smartphone use and academic performance is vital for educators, administrators, and policymakers to establish a supportive learning environment. So, the purpose of this study is to further the academic conversation about how smartphone use impacts on academic performance of tertiary students.

Literature Review

The use of smartphones affects students' lives in two ways, one is in their academic life and the other one is in their personal lives. Numerous research carried out in recent years pointed out the advantages and disadvantages of using smartphones by students. For example, a study by Junco and Cotton (2012) found that a high frequency of smartphone usage was negatively related to student's GPA, suggesting that unnecessary use of smartphones may lead to decreased academic performance. Similarly, a different study conducted by Lepp et al. (2015) found a negative correlation between smartphone dependency and academic success among college students.

Hossain (2019) studied spending time on mobile phones, the negative effect of mobile phones, and application usage while studying, and found a negative effect on students' academic performance. Ng et al. (2017) conducted research using 176 Malaysian students from three academic programs and recorded their daily smartphone use for learning. In that study, they found that the more students utilized their smartphones for university learning activities, the lower their GPAs. In their study titled "The impact of using smartphones on academic performance of undergraduates" Ifeanyi and Chukwuere (2018)

found that most undergraduate students are using their smartphones to engage with fellow students and lecturers. It was also found that using smartphones distracts students from their studies in certain aspects. Alfawareh and Jusoh's (2014) study revealed that students do not fully utilize smartphones for learning motives but utilize them to make calls, take pictures, and browse the internet.

Contrary to that Masiu and Chukwuere (2018), found that smartphone usage has a positive effect on students' academic progress, as they can access their academic material; it has improved their academic results and also improved their social networking. Another study by Barkhuus and Tashiro (2011) found no significant correlation between smartphone use and academic performance. Similarly, a meta-analysis by De Jonge et al. (2019) concluded that while there is a relationship between smartphone use and academic performance, the size is small and may be influenced by various factors such as usage patterns and individual differences.

According to previous studies, several factors may influence the impact of smartphones on academic performance. One such factor is the purpose of smartphone usage. For example, a study by Karpinski et al. (2013) found that using smartphones for non-academic purposes during class was associated with lower academic performance, highlighting the importance of distinguishing between productive and distracting smartphone usage.

Additionally, individual differences such as self-regulation and time management skills may moderate the relationship between smartphone use and academic performance. A study by Clayton et al. (2015) suggested that students with higher levels of self-regulation may be better able to control their smartphone usage and mitigate its negative impact on academic outcomes.

Furthermore, the context of smartphone use, such as the presence of academic-related apps or resources, may also play a role. For instance, a study by Chen and Yan (2016) found that students who used educational apps on their smartphones demonstrated higher academic performance compared to those who primarily used their devices for entertainment purposes.

The impact of smartphones on the academic performance of tertiary students is a complex and multifaceted issue. While some studies suggest a negative correlation between smartphone usage and academic outcomes, others have found no significant relationship or even positive associations under certain conditions. Factors such as the purpose of smartphone usage, individual differences, and the context of use are important considerations in understanding this relationship.

Future research is required to explore the underlying mechanisms and boundary conditions of the smartphone-academic performance relationship to inform the development of effective interventions and guidelines for smartphone use among tertiary students.

Methodology

This study utilized a quantitative approach to study the impact of smartphone usage on the academic performances of tertiary students. The population includes tertiary students studying at the Advanced Technological Institute (ATI) in Dehiwala, Sri Lanka. ATI Dehiwala is one of the main branches of the Sri Lanka Institute of Advanced Technological Education (SLIATE). ATI Dehiwala offers seven different business-related and non-business-related Higher National Diploma (HND) courses. Among these HND courses, Business Administration and Business Finance were selected as the target population. The reason for selecting this group was the findings from a survey carried out in the ATI. According to the survey, all participants in this target group own a smartphone compared to other students. Using the Google Form platform researchers developed a self-administrated online questionnaire. A cross-sectional survey was conducted from August to September 2023. To collect the data convenient sampling technique was employed. Because responses were gathered by distributing the questionnaire through students' official WhatsApp groups.

The questionnaire consists of four sections. The first section asks for the student's demographic information, and the rest of the sections inquire about students' ideas regarding often used phone functions, and how smartphones positively and negatively impact academic learning where the respondent can express their views using the five-point scale options.

Using the Statistical Package of Social Science (SPSS version 20) all the collected data was scrutinized and analyzed. Descriptive statistics were used to summarize the characteristics of smartphone usage and academic performance. The validity and reliability of the study were around Cronbach's alpha 0.80.

Results and Discussion

182 responses were received at the end of the survey where 51.5% were first-years and balanced 48.5%, were second-years. All the participants fall under the age category of 20 – 24 years. All responded that they own smartphones which indicates students are financially capable of owning a smartphone. And they use them for more than 3 hours daily for different purposes where results are similar to the findings of Patil and Dhanawade (2023). Since the institute does not supply free WIFI access within the institute they use their mobile data to browse the internet. Frequency analysis on demographic factors and frequently used mobile functions are presented in Table 1.

Table 1 - Demographic factors, frequently used mobile functions.

N = 182	Frequency (f)	Percentage (%)
Gender		
Male	76	41.5%
Female	106	58.5%
Year		
First Year	94	51.5%
Second Year	88	48.5%
Course		
HND in Business Administration	105	57.7%
HND in Business Finance	77	42.3%
Frequently used mobile functions		
Messaging (WhatsApp and other social platforms)	155	85%
Social media (FB, YouTube, etc.)	127	70%
Web browsing	109	60%
Camera	102	56%
Calls	91	50%
Applications (Apps)	82	45%
Entertainment (Music/Video)	73	40%
e-mails	55	30%

According to Table 1, it is clear that respondents use smartphones frequently for socializing rather than for academic purposes where the majority spend their time on messaging and social media apps. This is contradictory to the findings of Alfawareh and Jusoh (2014). According to their study, 80% of the students use their smartphones for making a call, sending text messages, and checking web pages.

The next section of the questionnaire is devoted to finding out the positive ways students use their smartphones for learning and they were allowed to make multiple selections. Since their mother tongue is Sinhala, the majority of students use smartphones frequently to find the meaning of the words or terms used in the classroom. Also, they use phones to access course information (such as syllabus, assignment, etc), to read course materials (notes and PowerPoints), and lastly to communicate with others about class assignments through email. As per results, students have used their smartphone as a digital camera for taking pictures and videos which is similar to Alfawareh and Jusoh (2014). In the study of Akyina and Manu (2019) for research question 2 in what ways do students use their phones to learn, the majority used to learn new words and to access the internet. Ng, et al. (2017) say students use smartphones to communicate with others by texting, accessing reference materials, and least often e-mailing about assignments. Smartphones provide students with convenient access to educational resources, facilitating independent learning and collaboration.

Table 2 - Positive ways of using smartphones in lecture hall and other learning activities

Statement (N=182)	Response	F (%)
Find meaning to the word	Always	164 (90.1%)
Access course	Always	134 (73.6%)
Read course materials	Often	120 (65.9%)
Find reference	often	116 (63.7%)
Texting	Often	102 (56%)
View pictures	Sometimes	87 ((47.8%)
Record lectures	Sometimes	63 (34.6%)
Email	Rarely	51 (28%)

The final section is designed to find the negative ways of using smartphones for learning. Here again, give the freedom to select multiple options. Table 3 depicts the final results on how students hindered their learning activities while using smartphones. A significant factor that disturbed their learning was stopping whatever they were doing when they received a notification and using WhatsApp. Other activities such as answering phone calls during

lectures were seldom while the majority never practiced viewing videos and pictures, having and sharing inappropriate images, online bullying, circulating false information, and taking phones to the exam hall.

Table 3 - Negative ways of using smartphones during lectures and other learning activities

Statement (N=182)	Response	F (%)
Notification	Often	142 (78%)
WhatsApp	Often	124 (68.1%)
Answer phone calls	Rarely	114 (62.6%)
Video & Music	Never	179 (98%)
Inappropriate images	Never	176 (96.7%)
Bullying	Never	174 (95.6%)
False information	Never	165 (90.6%)
Exam hall	Never	154 (4.6%)

Regardless of the educational benefits, smartphones can also be harmful to academic focus and productivity. Social media distractions and notifications contribute significantly to reduced study efficiency.

Conclusion

Smartphones play a multifaceted role in our lives, influencing the way we communicate, access information, and learn. The findings of this study suggest that students excessively use their smartphones for socialization. On the other hand majority use their phones positively to learn new words and to refer study materials. Even though they offer significant benefits in terms of educational resources and flexibility, users must be mindful of potential distractions and negative impacts on academic performance. Striking a balance between leveraging the positive aspects and managing the negatives is crucial for harnessing the full potential of smartphones in the context of education and beyond.

Recommendations

It is crucial to raise awareness among students about the potential consequences of smartphone overuse and promote healthier smartphone habits. Educational institutions can implement strategies such as digital detox programs, and time management workshops.

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