

IMPACT OF SMARTPHONES ON UNIVERSITY STUDENTS

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Executive Summary

The emergence of information and internet facilities has drastically affected every facet of a human life and, smartphones have taken special space in every individual's life. There is a considerable interest in exploiting the universal appeal and abundance of these technologies for the educational use. The whole world is using mobile phones, laptops, computers and now media devices fits in our pockets which helps us to get an information from various sources. The proliferation of these devices has changed the style of learning and enjoyment; students and learners are no longer dependent on offline based learning and teaching materials. Despite the remarkable benefits of smartphones in learning, use of smartphones for entertainment purpose has been increasing in a rapid way. Therefore, the general objective of this study was to find out the relationship between students and smartphones. Likewise, the core focus of the study was based on determined conceptual framework. The study was established on analytical and questionnaire survey research design where 94 students of T.U.- Mahendra Multiple Campus belonging to three different faculties were targeted sample population for primary data collection. Secondary data was taken from research papers written by different authors on the title of smartphones, learning and its positive as well as negative impact. The data acquired from the questionnaire survey shows that students are using smartphones for their better academic performance, learning and grades however, the social media platforms and their use by students have consumed the students productive time and concentration. Thus, students should be aware of their schedule and have better time management skills.

Introduction

The emergence of Information and Communication Technology (ICT) and the internet facilities has drastically affected almost every facet of a human life. Currently, it is evident in the way of teaching and learning. Nowadays, smartphones have become a part of every person's life. According to Technopedia (2019) smartphones are mobile phones with highly advanced features. A typical smartphone has a high-resolution touch screen display, Wi-Fi connectivity, web browsing capabilities and the ability to accept sophisticated applications (Ebily, 2015). Likewise, people around the world have adopted this new and exciting technology as one of the most important required facilities in their everyday life (Fawareh and Jusoh, 2017). The global explosion of smartphones and its related devices has transformed learning and teaching in developed nations, where developing nations are not the exception in a report from the

International Telecommunication Union, it was indicated that about 60 percent of the worlds' population has access to mobile phone (ITU, 2008 cited in Sarfoh 2017). There are more mobile phone users in the developing countries as compared to the advances ones which means developing countries utilize smartphones more efficiently. Among the developing countries, Malaysia has the highest use of smartphones where 55 percent of Malaysians use their mobiles to listen to music whereas 45 percent play games, watch online videos on their phones (Tagoe, 2014).

The proliferation of these facilities has changed the style of learning where students or learners no longer depend on offline paper based materials. The introduction of the internet led to the emergence of smartphones and it has enabled learning to take place irrespective of the geographical location or different time zone. Arguably, smartphones are found to be replacing the works of cameras, video recorders, digital watches, calculators, excreta. Therefore, purchasing of such gadgets are declining with the introduction of smartphones. Fawareh and Jusoh, (2017) mentioned that having a smartphone is like having a tiny computer in a pocket. It is blatant that the potency of smartphones is not only meant for placing and receiving calls or sending and receiving messages. According to Masiu and Chukwuere (2018), use of smartphones has greatly increased in the twenty-first century because of its exciting features to get access to social media platforms and many more. There are amazing features such as browsing, checking health status, emailing, music, sharing photos, excreta. In addition, there is an exponential use of social media as a result of the emergence of smartphones. With respect to technologies, 'mobile' generally means portable and personal object. Many examples of learning with mobile technologies fit into this description. Personal digital assistants and mobile phones are the most commonly used technologies for learning; however, they exist within the larger space of possible mobile technologies that can be broadly categorized on the two dimensions of personal versus shared and portable versus static. Moreover, Mobiles are a familiar part of the lives of most teachers and students in the UK today. We take it for granted that we can have other people at any time, from wherever we may be: we are beginning to see it as normal that we can have access to information, take photographs, record our thoughts with one device where we can share all these with our friends, family, colleagues or the wider world. Newer developments in mobile phone technology are also beginning to offer the potential for rich multimedia experiences and for location specific resources.

And the use of smartphones in learning has become the latest trend in higher education where an individual may not necessarily need a computer set to access electronic learning materials. The phenomenal roles of the smartphones in learning has been revealed by numerous authors such as in the work of Jung (2014) mentioned that smartphones in North-West University (NWU) are one of the usefulness enable users to study anywhere and at any time, making learning more effective. Similarly, Valk, et.al (2010) mentioned that the smartphones have made learning more flexible, easy and also have helped to reduce the inherent conventional classroom learning. For example, during

the COVID-19 pandemic, institutions offered online classes to the students to ensure the health and safety of students. Students were taking online classes via their smartphones and other devices on different platforms like Zoom, Google meet, Microsoft teams, etc. Despite the lack of practical knowledge from their respective teachers, students were comfortable with the situation they were facing because of the availability of various websites and learning platforms to gain needed data for their study. And, we cannot deny the fact that smartphones and other devices helped the students as well as other people working in different profession to maintain the work life balance.

Similarly, smartphone helps students to get information at less cost since this opportunity is only a function of a smartphone. Smartphones users are able to get access to any internet platform to download recorded lectures, slides and electronic books to enhance learning. According to Norris et.al, (2011) some sites do not allow students to get access to study materials but the camera of a smartphone helps them to take pictures, which directly assist students to relate with concrete ideas at a later date, mostly in distant learning.

Despite the remarkable benefits of the smartphone in learning, students mostly use smartphones on social media platforms such as Facebook, Instagram, TikTok, Twitter, Snapchat, Tango rather than using it for educational purposes. Those who in turn use smartphones are distracted by other functions with notification. This study intends to find out about the factors that fuels the students to use or not use smartphones for learning and other effects inherent with it. According to the Tagoe (2014), the adoption of smartphones in learning among tertiary students especially in Ghana found that the investigation on the potential of the smartphones in e-learning of educational institution shows that there is evidence to proof that most of these studies have been carried out in a Westernized European Context. Similarly, Alzougoel (2017) undertook a study on the use of smartphones for learning activities by university students in Kuwait for learning activities: the study concluded that use of smartphones performs prodigious roles in students' learning activities. For example, smartphones are used for registration of courses, checking exams schedules, checking grades from exams, group discussions, information exchange between teachers and students, announcements and money transactions as a fee to college. Moreover, smartphones are helpful in assisting translation and can also be used as dictionaries and calculators. Smartphones have a positive impact on students for online learning, looking for materials that they do not understand in the classroom. On the other hand, students who are addicted to using smartphones are more into cheating on assignments and exams as well as lacking focus in learning whereas, they are involved in watching games, TikToks, YouTube videos, movies, music, excreta.

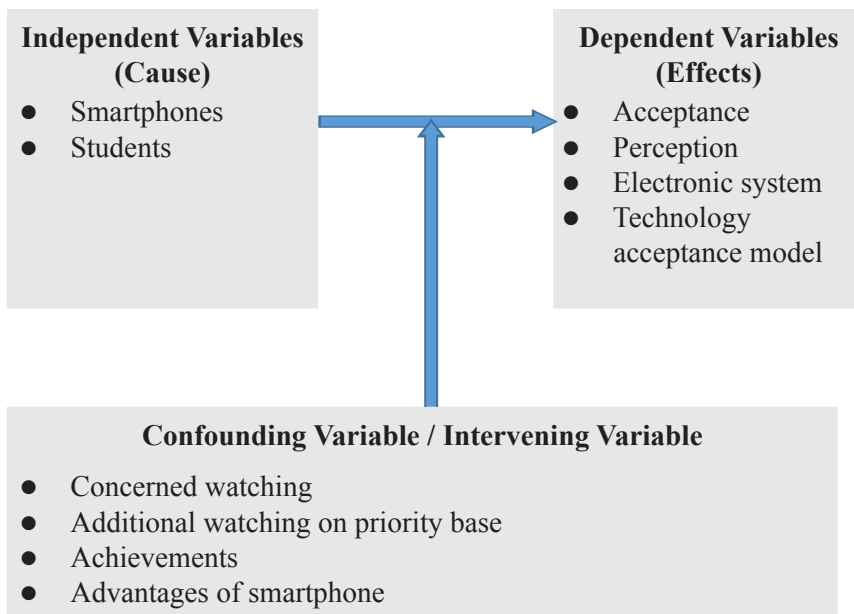
Objectives of the Study

The general objective of the study is to find out the relationship between students and smartphones whereas the specific objectives are as follows:

1. To find out the students perceived ease of use of smartphones in learning activities.
2. To determine the usefulness of smartphones in students' academic achievements.

3. To investigate the effects of the use of a smartphone in students' learning activities.
4. To investigate the factors that inhibit the use of a smartphone as a learning tool.

Conceptual Framework



Research Method

The study is based on analytical and survey research design. Both primary and secondary data were collected to achieve the factual results. Information collected from the primary and secondary sources were applied for the findings of the study.

Primary data was collected with the use of survey research design. It is a popular research design for gathering a huge amount of data from a sizable population in an economic way. Moreover, the survey research method is appropriate because it will lead to the validity and reliability of the findings. Survey was carried out with a self-designed questionnaire in order to collect data from the respondents belonging to different backgrounds. Questionnaire tool was chosen because it helps in comparing data based on the facts and choice of the respondents regarding smartphones. Therefore, it is imperative to know the use of a smartphone on students and its effect on their learning activities.

In this study, the study population comprises Bachelor of Arts (BA), Bachelor of Business Studies (BBS), Bachelor of Science (B sc.), Bachelor of Business Administration (BBA) students. The sample size is 94 where students were selected through a simple random sampling method. Moreover, secondary data was collected from research papers written by different authors on the title use of smartphones on learning and references from the related articles were also considered.

Findings of the Study

1. Sex composition

The studied sample population was 94. From the study, it was found that 43.62 percent was male population and 56.38 percent was the female population. And we can say that the females participated more actively in the survey than males. Also, it can be considered that the results represent the real scenario of the campus and the it also matches the global composition of males and females.

Sex Composition	No.	%
Male	41	44%
Female	53	56%
Total	94	100%

Source: Questionnaire survey, July 2023

2. Age composition

The questionnaire survey included the question about the age of students studying in the campus. The composition of age was under 19, 19-21, 21-23, 23-25 and above 25. The stakeholders can observe the results found in the survey in the pie chart mentioned below:

Age group (years)	No. of students	%
Under 19	2	2%
19-21	40	43%
21-23	44	47%
23-25	5	5%
Above 25	3	3%
Total	94	100%

Source: Questionnaire survey, July 2023.

3. Faculty

As mentioned above, the online questionnaire was prepared to collect the data from the students studying different courses in the Mahendra Multiple Campus. The targeted sample population were from BBA, BSc., BA and BBS. The table mentioned below represents the data found from the survey in which we can see the effectiveness of smartphones in their learning.

Faculty	No.	%
BBA	35	37%
BSc	29	31%
BA	24	26%
BBS	6	6%
Total	94	100%

Source: Questionnaire survey, July 2023.

From the results, it was found that the BBA and BSc. students are using smartphones effectively for their learning and they have been technically disciplined to meet their learning goals. Moreover, the use of smartphones by BA students shows that they are able to meet the goals of changing perspectives of socio-cultural aspect. However, the participation of BBS students in the survey was less, which also refers to their unacceptable learning via smartphones.

4. Devices of students

There are different devices to get access to the internet for learning as well as entertaining purposes. The access devices of students play an important role in a student's life. The table below represents the data about the access devices, time spent and learning motivation factor of the respondents obtained from the survey.

Matter of question	Hour spent on smartphone for learning			Felt motivated from learning via smartphone			Devices students have		
	Time spent	No.	%	Responses	No.	%	Devices	No.	%
	1 hr	9	10%	Yes	72	77%	Android	46	49%
	1hr-2 hr	42	45%	No	2	2%	Laptop	32	34%
	2hr-3hr	24	26%	Sometimes	19	20%	Iphone	8	9%
	3hr-4hr	6	6%	Always	1	1%	Desktop	5	5%
	4hr-5hr	13	14%				Ipad	3	3%
Total		94	100%		94	100%		94	100%

Source: Questionnaire survey, July 2023.

Smartphones are being used as per their individual interest and their time schedule. From the survey it was found that the students are actively learning via their convenient devices for 1-2 hours. Although, the data obtained also indicated the passive participation of students in learning, which also means that students are involved in offline learning. Altogether, the survey showed positive influence of smartphones on students, however the impact of long screen time can cause health issues.

5. Mobile learning experiences

Students nowadays are heavily dependent on technology and they are technically

experienced and interested in using their smartphones in their daily life. The survey showed that the proportion of students enjoying mobile learning is comparatively high to the students occasionally liking mobile experience.

In conclusion, the students of TU, Mahendra Multiple Campus, Dang are spending their adequate time to learn their reading materials using their convenient devices as well as liking the online learning experience and following the machinery learning pattern to meet their required goals.

Responses	No.	%
Yes	76	81%
No	1	1%
Sometimes	15	16%
Always	2	2%
Total	94	100%

Source: Questionnaire survey, July 2023.

6. Learning activities on smartphone

There are different features in each device and different applications available in the play store for people to use. As this research is focused on students, activities on their devices differ which includes learning reading materials, social media, taking pictures, texting messages and making calls. The frequent use of the internet by students and other people has been increasing day by day. The learning activities obtained via the internet also helps students to feel motivated, engaged and academically progressed. The table below shows the activities of students in detail.

Matter of questions	Course related activities			Most liked activities		
	Activities	No.	%	Activities	No.	%
	Read course related content	42	45%	Reading books, novels, articles, news, etc	30	32%
	Check Syllabus	14	15%	Social media	49	52%
Responses	Check course content	10	11%	Taking pictures	5	5%
	Asking advising questions	9	10%	Texting messages	5	5%
	Others	19	20%	Making phone calls	5	5%
	Total	94	100%		94	100%

Source: Questionnaire survey, July 2023.

From the survey, students involved in reading books, articles, novels and news are high however, the active involvement of students on social media also indicates their addiction on social media platforms while causing procrastination, distribution of sleep patterns and social isolation. Lastly, it is really necessary for students to understand the positive and negative impact of the internet and their devices for better future and wellbeing. Similarly, the survey conducted showed that the students are actively involved in learning course related content and few students are interested in searching course content, syllabus, advising questions.

7. Learning platform

The availability of options in today's world is unlimited. The creation of different platforms is growing with the changing environment and people's needs. There are different platforms for people to study, research. However, the choices might differ depending on the people's need and necessity. Having said that, student's most preferred platform to learn is limited. And this study focuses on student's behavior towards certain platforms for their quality of education.

Matter of question	Learning platform				Watching videos on YouTube		Switching videos for quality content	
		No.	%		No.	%	No.	%
	YouTube	50	53%	Yes	72	77%	66	70%
	Google	42	45%	No	0	0%	3	3%
	Google Scholar	2	2%	Sometimes	20	21%	24	26%
				Always	2	2%	1	1%
Total		94	100%		94	100%	94	100%

Source: Questionnaire survey, July 2023.

There are different learning platforms for students like YouTube, Google and Google Scholar. From a survey, it is found that more than half of the students are using YouTube whereas, the other half percent are using google for better learning. Students are searching learning materials on different websites in google platform. However, the use of other platforms like Chat GPT and google scholar are also considered as educational sites for students.

TU students are more into YouTube for learning purposes. Through a survey, it is found that 77 % are watching videos from different creators on the same topic. Moreover, 21% are rarely watching videos on YouTube which means they are more into offline learning. Likewise, 2 % are usually into watching videos on YouTube for their practical learning with different methods and tricks.

In conclusion students are comfortable and find it more convenient in using YouTube in comparison to other platforms. Moreover, students are also into finding better learning

experiences through checking different creators and their method of teaching.

8. Academic support and assistances

The smartphone has a both positive and negative impact on academic performance of the students. Firstly, in this research positive impacts are discussed according to the data obtained from the research site.

Matter of question	Use of calculator and dictionary		Consuming videos and websites		Use of mobile device for assignment and homework		Downloads of academic materials		Motivated from learning on own device		Use of mobile on collaborative work		Use of mobilephone even after teacher's permission		Comfort of use of device in classroom		
Response	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%
Yes	41	44%	66	70%	41	44%	45	48%	72	77%	71	76%	21	22%	Low	65	69%
No	12	13%	3	3%	12	13%	12	13%	2	2%	4	4%	50	53%	Medium	23	24%
Sometimes	39	41%	24	26%	39	41%	35	37%	19	20%	18	19%	23	24%	High	6	6%
Always	2	2%	1	1%	2	2%	2	2%	1	1%	1	1%					
Total	94	100%	94	100%	94	100%	94	100%	94	100%	94	100%	94	100%		94	100%

Source: Questionnaire survey, July 2023.

The features of smartphones like camera, sound recording function, calculator, video function helps in the learning process. The applications that can be installed in smartphones like YouTube, Google, Chat GPT helps students to find quality learning materials. The survey conveyed that the students are taking advantage of smartphones and the internet by watching videos and visiting websites to learn, to complete their assignments and to have effective quality learning where few students occasionally consider the internet and smartphone as a source of learning. Similarly, smartphones are also used as a dictionary and calculator by students as well as other people in their daily life. The study conducted found that nearly half percent of the university students are using their smartphones as a dictionary and calculator whereas the other half percentage of students do not find smartphones useful as dictionary and calculator which means students do not use calculator and dictionary application in their device. We can assume that these students are using real calculators for their mathematical calculations and printed dictionaries to find the meaning of various words.

Likewise, online learning with quality materials helps students to increase their grades, academic performance and progress and the information sharing with teachers, friends and classmates. And such activities performed through the smartphone or the mobile device students have contributed to increase their social skills. Furthermore, university students are downloading academic papers, syllabus and lecture videos for their effective learning. From the study conducted, nearly half percent of students are downloading their academic materials via their smartphones whereas, half of quarter percent do not download their study materials for better academic performance. Likewise, another quarter percent is not usually involved in downloading the materials; however, few percent are involved in downloading activity on a regular basis. Therefore, it can

be concluded that some students are better at time management, effective learning and have easy access to the internet for better study time.

Furthermore, communication is a key to sharing information between students, teachers, classmates and teammates. Likewise, smartphones are being used as a communication tool to exchange information, content sharing and solve the problem via calls and messages. The group works given by teachers are carried out with the aid of smartphones. Moreover, the data obtained shows that the students are interested and taking advantage of smartphones to do collaborative work in the university as well as outside the university. And, the results of the survey include that the students are highly motivated from their learning through their devices.

Correspondingly, the habit of students to have the internet and to get access to it has become a routine. Students are likely to bring their smartphones in the campus without any restrictions to record the lecture and to click pictures of the learning materials; however, the habit of students to use their devices for other purposes has not been disciplined. Likewise, the students of the Mahendra Multiple Campus are found to be uncomfortable to use their mobile device in the classroom and few of the students are fairly comfortable to use their mobile devices with the permission and without the permission of the teachers.

9. Mobile devices for entertaining purposes and its impact on students.

It is an undeniable fact that the people are using smartphones and other devices for entertainment purposes only. The entertainment includes watching videos and movies, playing games and listening to songs and podcasts. Smartphones are portable and easy to carry and there are free applications accessible for entertainment to everyone. The craze of social media has increased because of people's involvement and interest towards it. And the use of smartphones and other devices for many hours has a negative impact on people. As this research is focused on students, there are different impacts of it on student's behavior, lifestyle and academic performance. The table below gives information on the negative impact of smartphones and other devices on students in a detailed manner.

Matter of question	Smartphone as source of distraction		Receives notifications in learning hour		Get distracted in learning hour		Self engagement in learning hour		Disturbance in sleeping patterns		Time spent for entertainment purpose only			Involved social media platforms		
	No.	%	No.	%	No.	%	No.	%	No.	%	Time spent	No.	%	Platforms	No.	%
Yes	45	48%	34	36%	46	49%	32	34%	39	41%	1 hr	9	10%	less than 2	12	13%
No	11	12%	26	28%	10	11%	31	33%	18	19%	1hr-2 hr	42	45%	2-3.	26	28%
Sometimes	37	39%	34	36%	38	40%	32	34%	35	37%	2hr-3hr	24	26%	3-4.	27	29%
Always	1	1%	0	0%	0	0%	0	0%	2	2%	3hr-4hr	6	6%	4-.5.	14	15%
											4hr-5hr	13	14%	more than 5	15	16%
Total	94	100%	94	100%	94	100%	95	100%	94	100%		94	100%		94	100%

Source: Questionnaire survey, July 2023.

There are different social media platforms available on the internet. These platforms are freely accessible and can be used for different purposes like communication, business, entertainment, news and playing games. The choice of installing social media platforms depends on the individual interest. Social media applications like Instagram, Facebook, Snapchat, Twitter, TikTok, Viber are at our fingertips at any time. The social media platforms are used for exchange of information, sharing pictures and posting directly from our mobile phones to other people's timeline or home page. The survey asked about the number of social media platforms students have been using and the result showed that the majority of students have installed three to four social media applications on their device whereas a minority of students have four to five social media platforms installed. Thus, it is clear that the students are actively engaged in using different social media platforms irrespective of their busy student life. Furthermore, data also showed that nearly half percent of students are spending two hours, quarter of students are spending three hours and another quarter of students are spending four to five hours of their time on social media.

Entertainment and social media has been drawing attention between people's study and work. Easy access to social media has been a main cause of the distraction. The constant scrolling through the timeline of social media platforms in their productive time and free time has influenced and affected academic performance. According to the data obtained, half percent of students are distracted by the constant use of smartphones and the notifications received whereas the other half percent are merely managing their time and not getting attached, addicted and distracted from it.

Receiving notification of messages, calls, notice and news indicates the inflow of information to the receiver. Such notifications in the learning period distracts the productivity and concentration of the students. According to the survey, half percent of the sample population receives notifications and gets distracted in their learning hour whereas, one quarter percent do not receive notifications and other quarter percent sometimes receive notifications however, they are better at focusing on their studies and have better concentration.

On the other hand, students themselves have the tendency to get engaged in the outflow of the messages, calls and scrolling the timeline in social media platforms. Smartphones and social media are a source of distraction for students. And the addiction of using smartphones makes people use it more frequently regardless of the situation and time schedule. Student's habit of using smartphones in break, during assignments, reading, practice, team work and during preparation of exams has consumed the precious time as the wastage of time. Such activities during learning hours have affected the academic performance and grades of students. The data obtained from the survey showed that more than half of the population are self-engaged for the outflow of messages and scrolling in social media platforms whereas, remaining are not engaged in such activities.

The continuous use of social media can be associated with the addiction to people and students. The excessive use of smartphones during sleeping time affects the sleeping

routine. The frequent use of smartphones in sleeping time can cause insomnia. Moreover, the health problems associated are headache, eye swelling, tension, depression, anxiety and eyesight problems. Therefore, the data obtained on the change in sleeping patterns of the student is showing the reality of the student's life. Nearly half of the students are impacting their sleeping schedule due to overuse of smartphones and one quarter students have sometimes disrupted their sleeping pattern and the remaining quarter students are good at managing their screen time and having good sleep. Thus the students having fixed routine and better time management are having productive student life and not hampering their day to day activities.

Limitations of the Study

- 94 respondents from T.U., Mahendra Multiple Campus Baharatpur, Dang were targeted for the study site.
- The questionnaires forwarded for the data collection might not include the sincerity of the students.
- Respondents for the data collection are less so, the data analysis might differ than expected.
- The core aim of the study is to sketch the impact of smartphones on university students including their teachers research quality enhancement. However, the improvement in teachers and students cannot be tested in a short period of time.
- The core focus of the study is concerned with a conceptual framework.
- The study was conducted to upgrade academic quality of university teachers and this research was performed without any financial offers.
- The findings and conclusions of the study may not be accurate because of educational environment of campus and their students are different.

Conclusion and Recommendations

There are different benefits and limitations of using a smartphone. The advantage of smartphones has been increasing day by day. Students have adapted the use of smartphones in their daily life for acquiring knowledge, entertainment, learning out of classes and academic assistance. Smartphones are found to be considered as flexible learning tool for social connectivity during collaborative or to communicate with teachers and for personalized learning activities. Similarly, the increasing use of electronic system and technology by students and somehow by teachers represents the paradigm shift in teaching and learning activities. The findings of the survey also showed that the ability to practice and learn irrespective of the location and time has produced significant improvements in student's academic performance, motivation, focus, engagement and enthusiasm. Virtual learning with the growing digital tools has helped students to get exposed to formal and informal learning context. Also, the features of smartphone and other devices and the use of internet has been supporting students to understand more learning approaches which has indirectly or directly helped in critical thinking, adaptability, creativity with the assignments and problem solving. Through this article

we found that the students are liking online learning and finding it more effective.

There are different consequences related with smartphones and it is entirely up to the user on the way they use them. From the findings it is clearly shown that, nearly half of students are focused on using social media platforms in their digital device for the longer period of time. It is necessary to understand the proper use of smartphones and other devices. Use of smartphones for a long period of time makes people addictive so, the students should use smartphones for a limited period of time for important work studies, calling, texting, playing video games and using social media platforms. Likewise, students should be aware of the bad effects of smartphones like procrastination, lack of concentration, loss of sleep, poor vision, addiction, poor academic performance, decreased social skills and anxiety due to isolation. Similarly, the excessive use of smartphone can cause mental health problems to the students. Therefore, students should develop the time management skills for their healthy lifestyle. Students should get better understanding of how to manage time and prioritize the tasks, resulting in concentration, focus and productivity. Timer limits feature available on digital device and continuous follow of the routine might contribute to students less screen time.

In the end we can conclude that the advantages and disadvantages of a smartphone are not limited in this article. So, there is an opportunity for future researchers to focus more on the student's behavior towards smartphone based on their preferred way of learning including online classes and offline classes, difference between online learning and offline learning, negative impacts of smartphones on students, impact of social media on students.

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