PERCEIVED USAGE OF SMART PHONE FOR ACADEMIC ACTIVITIES BY THE UNDERGRADUATE SCIENCE EDUCATION STUDENTS OF THE FEDERAL UNIVERSITY OF KASHERE, GOMBE STATE

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Abstract
This study examines perceived usage of smartphone for academic activities by the undergraduate science education students of the Federal University of Kashere, Gombe State. Four (4) objectives and four (4) research questions were raised. The study adopted descriptive research design using a population of 419 undergraduate science education 400 level students in federal university of Kashere, Gombe State. The sample size of the study was 200 students which are determined using Krejcie and Morgan's (1970) table. The researcher used proportionate sampling techniques to determine proportion of students in each discipline. Then simple random sampling technique was used for the study to select the sample of the study A structured questionnaire was adapted title 'Perceived Usage of Smartphone Questionnaire' (PUSQ) developed by the researcher. Split half method was used to establish the reliability of the instrument. Two experts in science education validated the instrument to ensure its content and face validity. The questionnaire was tested for reliability on twenty (20) randomly selected students from science education federal university of Kashere who are not part of the study. The data gathered from the pilot study was analysed` to check for internal consistently of reliability and the spearman brown formula was used to get the reliability index of 0.85. The data collected were analysed using mean and standard deviation among others. The findings

showed that undergraduate science education students aware on the usage of smartphones for academic activities. It was reveal all the respondents agreed with usage of smartphone has a positive and negative impact to their school activities among undergraduate science. It was therefore recommended that Mobile learning should be incorporated into the school curriculum and be taught at various levels to enhance better knowledge on how to make use of smartphones for academic purpose. In the future, research must be done to find out the impact of smartphones on brain or human head, in the sense that do they cause any biological effects on human head or brain leading to the addiction students are having on them.

Keywords: Perceived, Usage, Smartphone, Academic activities.

Introduction

In today's world, digital technology changes so rapidly and integrates into our society at such an accelerated rate, it is hard to keep up with it, let alone reflect on the effects it has on our lives. Communication is a major driver of any society. Information and communication technology (ICT) is highly valued by households, organizations, and countries, according to emerging patterns in socio-political development. Due to years of societal reversal brought on by poor leadership and poor management, Nigeria is not excluded in this race for quick development. People who multitasked fared worse on specific tasks than those who completed the tasks sequentially since the current generation has become adept at switching between different tasks and media (Greenhow & Askari, 2017). As the world is being developed with new technologies, discovering and manipulating new ideas and concepts of online education are changing rapidly. The introduction of Smartphone has revolutionized the communication industry in Nigeria and the world over. Both the poor and the rich now use telephone in the contemporary day.

Smart phones device has become essential part of daily life and a valuable means of information dissemination. Owning a smartphone has social, economic, psychological, and educational repercussions for kids since it might affect how they behave and think about school-related activities. Students' usage of smartphones is crucial, however excessive use is linked to distracted behaviour, attention problems, and deviant behaviours. In Nigeria, the introduction of smartphones with internet access has created a vast and varied body of knowledge. However, Etukudo (2019) points out that it has also unintentionally reduced students' dedication to serious academic work and adversely affected their language, communication, and thought processes. Students at universities have benefited greatly from the use of smartphones since it has improved their academic performance and influenced their academic behavior, which leads to better academic outcomes. One of the roles of the smart phone in education has been identified as the provision of instant access to available information around the world. Through the internet and its resources, education might be delivered remotely anywhere in the globe. The abundance of information available through online platforms is causing traditional learning and teaching methods to change. Instant access to knowledge on almost any topic is available to both teachers and students.

University students' use of smartphones has advanced quickly. A glance around the Federal University of Kashere in Gombe State reveals a large number of students sitting or standing while fumbling with their smartphones in an attempt to access the internet. Many undergraduate science education students now consider smartphones to be an indispensable part of their daily lives. Given the abundance of information on the internet and the

increasing accessibility of modern gadgets like smartphones, it appears that modern undergraduates rarely consult other sources for their study. Use of Smart phones has resulted to changes in the manner undergraduate science education students of Federal University of Kashere use and access information for social and academic activities.

The use of smartphones by undergraduate students depend on the choice or interest. The choice or usage is often necessitated by the satisfaction the users want to achieve. But most importantly, the features on any particular phone determining what the users may use it for. Convergence is the term for the blending of formerly distinct media due to advancements in digital technology. Due to the development of digital technology, smartphones have also become more complex and multipurpose, providing users with multiple ways to access different types of media (Ifeanyi & Chukwuere, 2018). Social media has made smartphone use more common among young people, especially college students. The youth rely on the versatility of smartphones to use social media spaces and other applications for their purposes. Smartphones are the new generation of mobile phones, they have emerged over the last few years and already have conquered the market. Smartphones with their mini keyboards are not just phones, but have computer functions as email, calendar and address book, and office programs for reading and editing. The multimedia phone features such as camera, video, sound recordings or podcasting is advanced and can compete with specialized equipment. Smartphones can be customized with new software, and the variety of these programs is increasing. These days, smartphones allow users, advertisers, and publishers to interact and socialize more effectively through the ubiquitous experience of this cutting-edge platform by utilizing the company's resources. The operating revenues and expenses are the main emphasis of the income statement. For decision-making, user groups of financial reports need information about all aspects of availability and ease of use (Lusekelo & Gervas, 2015). One of the greatest innovations in technology is the smartphone, which has altered our perception of mobile phones and their capabilities. Smartphones have undoubtedly had an impact on many lives in the field of education (Tejaswini, 2019). Technology used in education makes sure that everyone develops, employs, and manages technology to enable everyone to learn. Understanding the part that educational technology plays in society at this time is crucial. According to Mehdi et al. (2020), smartphones provide several advantages, such as enabling students to learn whenever and wherever they choose, making it simple to finish assignments as they come up, take notes during class, and continue studying after class. Smartphones can help students grasp this concept by offering them a variety of ways to study a certain subject depending on how they choose to learn (Muhammad et al., 2017). Students can utilize mobile applications to not only find out the answers to the questions they have about their classes, but also to use a Virtual Assistant to learn much more about a certain topic.

It is crucial that people enhance their lifestyle and consider solely the advantages of smartphones. According to Gowthami and Venkata (2016), excessive smartphone use also reduces manual interaction. Thus, appropriate guidance and effective smartphone use for learning are necessary. Unfortunately, university students are using their smartphones more for social interactions than for learning, which is having a detrimental effect on their academic performance. They think the smartphones are their new family members and they talk to it all day long without inculcating it use for reading. Bringing smart phone into the classroom is the

possibility of immoral activity taking place during class, which might make supervising the class difficult. It should go without saying that technology has a big impact on younger people's lives and speeds up their learning and skill development. A university must foster a vibrant, energetic, and secure learning environment (Mohammad & Mohammad, 2017). Due to the importance of smartphones in many facets of life, it is impossible for anyone to avoid using or owning one. Furthermore, use of smart phone also tends to make student lazier in some many areas of their academic life, such as attending classes because they see no need to since they have access to necessary materials on the internet, also in the aspect of doing assignments, copy and paste is the trend now a day.

Although it's commonly believed that using the internet for education is generally beneficial, this may not always be the case. According to Burbules & Callister (2000), cited in John (2019), a smartphone's efficacy depends on how, by whom, and for what purposes it is utilized. The general idea is that the usage of smartphones will enhance the course, engage the students, and allow them to learn more, even though the motivations may vary. Additionally, faculty members may have an unspoken optimism that teaching ratings would get better. It is obvious that using a smartphone can affect a number of these features. Thus, in recent years, the proliferation of smart phone use in an educational setting has sparked considerable interest on the part of researchers, and a number of studies have focused on the positives and negatives of smart phone use from the perspectives of the institution, students and lecturers. According to Gowthami, et al, (2016), using smartphones in the classroom generally improves students' attitudes toward learning and helps teachers who use them.

Dulanjali (2023) claims that smartphones have fundamentally altered how people study. Mobile device use by undergraduate increases their chance of being addicted to their phones. Overuse of smartphones among students could have unfavorable consequences. Justice et al. (2019), found that health trainees who do not use smartphones in their learning activities has negative attitude towards learning. Chathuranga and Jaysundara (2020) argue that the majority of respondents have used their smartphones to access social media applications, and web browser is identified as the most frequently used mobile application for learning. To Navpreet (2018), mobile phone usage affect that mobile devices may so easily obstruct a teen's education.

Statement of the Problem

As a contemporary technology, smartphones have significantly altered students' academic pursuits. In the future, students will be able to use their smartphones to exercise more power than they could have ever dreamed. However, it's not always the case that smartphones have a favorable impact; they can often have the opposite effect. Even if using a smartphone has social and intellectual advantages, there are risks and stress involved, especially for students in higher education. Also, there is high tendency or temptation of the students to interact with their smartphones in the class in the course of lectures, either to respond to received messages, or to browse the internet. These undoubtedly have a significant negative impact on the amount of focus given to the lectures. Interestingly, observation by the researcher understand that students have continuously shown a stronger level of connection to the smartphone, which may serve as a distraction from their academic pursuits, thus this is certainly necessary. Although the use of phones is not meant to have a negative impact, the student has

become fixated on them due to their attitude and amount of time spent on them.

Many university students perceive smartphones primarily as a leisure device, and most commonly use smartphones for social networking, surfing the Internet, watching videos and playing games. If smartphone typically utilized for leisure rather than education, then it may disrupt learning within academic settings. Thus, the potential relationships between cell phones use and academic activities will become ambiguous and difficult to define. Students typically spend less time studying and more time using their smartphones for leisure and recreation. As a result, they put off doing their assessment assignments until the last minute, which puts pressure on them and ultimately results in low grades. Despite the prevalent usage of smart phone amongst the University students, the level at which the smart phone has either contributed or caused havoc to students' academic activities is still inconclusive. It is, therefore, against this backdrop that this study delves into investigating the perception on the use of smart phone devices for academic activities by the Undergraduate science education students of the Federal University of Kashere, Gombe State.

Aim and objectives of the study

The aim of the study is find out the perceived usage of smartphone for academic activities by the Undergraduate science education students of the Federal University of Kashere, Gombe State. The specific objectives are to:

a. determine the level of awareness of smartphones usage amongst the undergraduate students of Federal University of Kashere?
b. investigate the attitude of undergraduate science education students' usage of smartphone in the classroom?
c. determine positive impact of smartphone usage among undergraduate science students in Federal University of Kashere?
d. determine the negative impacts of smartphones usage on undergraduate students in in Federal University of Kashere?

Research Questions

Based on the objectives of the study the following research questions were raised;

a. What is the level of awareness of smartphones usage amongst the undergraduate students of federal university of Kashere?
b. What are the attitude of undergraduate science education students' usage of smartphone in the classroom?
c. What is the positive impact of smartphone usage among undergraduate science students in Federal University of Kashere?
d. What are the negative impacts of smartphones usage on undergraduate students in Federal University of Kashere?

Methodology

This study adopted a descriptive survey research designed to investigate the perceived usage of smartphone for academic activities by the Undergraduate science education students of the Federal University of Kashere, Gombe State. The target population for this study comprised of 416 undergraduate 400 level science education students of the Federal University of Kashere, Gombe State. The sample size of the study was 200 students which are determined using Krejcie and Morgan's (1970) table. The researcher used proportionate sampling techniques to determine proportion of students in each discipline. Then simple random sampling technique was used for the study to select the sample of the study. The table of proportionate sampling techniques presented below:

Table 1: Proportionate Sampling Techniques

Various discipline	Population of 400 levels	Sample
Agricultural Education	40	19
Biology Education	165	80
Chemistry Education	92	44
Computer Science Education	69	33
Integrated Science Education	25	12
Mathematics Education	11	5
Physics education	14	7
Total	**419**	**200**

The instrument used in this study to collect data from respondents was a structured questionnaire titled 'Perceived Usage of Smartphone Questionnaire (PUSQ) constructed by the researcher based on the four-point Likert scale of SA, A, D, SD. The questionnaire was designed to elicit responses from undergraduate science education students on the usage of smartphones in the faculty of education, federal university of Kashere, Gombe state. Two (2) experts from science education validated the instrument to ensure its content and face validity. The questionnaire was tested for reliability on twenty (20) randomly selected students from science education federal university of Kashere who are not part of the study. Split-half method was used to determine the reliability of the research instrument and the correlation coefficient was 0.85, which indicates that the instrument was reliable. The data gathered from the pilot study was analysed to check for internal consistently of reliability and the spearman brown formula was used to get the reliability index of 0.85. Descriptive statistics such as mean was used were used to answer all the research questions.

Results

Research Question One: What is the level of awareness of smartphones usage amongst the undergraduate science education students of federal university of Kashere?

Table 2: Mean Respondents on the Awareness of Smartphone Usage among Undergraduate Science Education Students

S/N	Items	SA	A	SD	D	N	∑FX	X	Remarks
1	Awareness on the usage of smartphone for accessing the internet	536	135	22	10	200	703	3.5	Agree
2	Awareness on the usage of smartphone for making call	632	105	12	1	200	750	3.8	Agree
3	Awareness on the usage of smartphone for reading documents file	380	135	70	25	200	610	3.1	Agree
4	Awareness on the usage of smartphone for sending and receiving media files	412	126	50	10	200	678	3.4	Agree
5	Awareness on the usage of the smartphone in communicating with lecturers and course mate	580	99	30	7	200	716	3.6	Agree
	Grand Mean							**3.5**	

Table 1, shows the distribution of respondents according to level of their awareness of smartphones usage. According to the Table, all the respondents were strongly agreed that most undergraduate science education students of FUK have awareness on the usage of smartphones for accessing the Internet with their mean values ≥ 2.5. The grand mean of all the responses is 3.5 indicating their awareness on the usage of smartphone.

Research Question Two: What are the attitude of undergraduate science education students' usage of smartphone in the classroom?

Table 3: Mean Responses on the Attitude of undergraduate Science Education Students' Usage of Smartphone in the Classroom

S/N	Items	SA	A	SD	D	N	∑FX	X	Remarks
6	Smartphones offer several opportunities to create, disseminate, and promote creative educational methods	440	168	66	1	200	675	3.4	Agree
7	A smartphone can aid in the creation of new tools and learning techniques.	92	42	260	28	200	422	2.1	Disagree
8	With an internet connection, smartphones can be used by students as modern learning tools.	528	132	44	2	200	706	3.5	Agree
9	On their smartphones, students can capture and save content for later use.	528	132	24	12	200	696	3.5	Agree
10	Using smartphones, students may work in groups on projects while sharing knowledge and findings.	632	105	12	1	200	750	3.8	Agree
	Grand Mean						**3.3**		

Table 3, Item 6, 8, 9 and 10 indicated their mean responses is ≥ 2.5. Thus shows undergraduate science education benefits from smartphone while only items 7 showed mean ≤ 2.50, this indicate the respondents does not benefit from it. The grand mean of 3.3 shows that undergraduate science education benefits from smartphone in the classroom.

Research Question Three: What is the positive impact of smartphone usage among undergraduate science students in Federal University of Kashere?

Table 4: Mean Responses on the Positive Impact of Smartphone Usage Among Undergraduate Science Students

S/N	Items	SA	A	SD	D	N	∑FX	X	Remarks
11	Students can use websites to obtain resources for their studies in addition to the apps that assist them with their homework or assignments	580	126	50	10	200	678	3.4	Agree
12	Smartphones can be used by students to access libraries.	304	75	182	8	200	569	2.9	Agree
13	Students who use their smartphones properly can manage their time, set deadlines, and complete their assignments on time.	260	69	190	17	200	736	3.7	Agree
14	Students can utilize a particular application to request help in a subject they are struggling with.	88	132	264	2	200	486	2.4	Agree
15	Smartphones can be used for information gathering, news sharing with loved ones, and teacher-student communication	580	99	24	10	200	713	3.6	Agree
16	Smartphones enhance social interaction and keep the school community in constant contact	624	69	32	5	200	730	3.7	Agree
	Grand Mean						**3.3**		

Table 4, Item 11, 12, 13, 15 and 16 indicated their mean responses is ≥ 2.5. Thus shows positive impact of smartphone on the undergraduate science education while only items 14 showed mean ≤ 2.50, this indicate the respondents do not agree with it. The grand mean of 3.3 shows that almost all the items are positive impact of smartphone on the undergraduate science education undergraduate science.

Research Question Five: What are the negative impacts of smartphones usage on undergraduate students in the faculty of education, university of Port Harcourt?

Table 5: Mean Responses on the Negative Impacts of Smartphone among Undergraduate Science Education

S/N	Items	SA	A	SD	D	N	∑FX	X	Remarks
17	I play games every day on my smartphone during Lectures	624	69	46	1	200	740	3.7	Agree
18	Smartphone use does not allow me to engage in-class activities	480	198	18	5	200	701	3.5	Agree
19	I spend more money on a smartphone than academic expenses	580	66	46	10	200	702	3.5	Agree
20	I feel distressed in class when my phone is not with me	580	99	30	7	200	716	3.6	Agree
21	Smartphone devices do not allow me to engage fully in-class activities	304	75	182	8	200	569	2.9	Agree
22	The use of smartphone devices by other students distracts me from paying attention in class	580	99	24	10	200	713	3.6	Agree
	Grand Mean						**3.5**		

Table 5, Item 17, 18, 19, 20, 21 and 22 indicated their mean responses is ≥ 2.5. Thus shows all are negative impacts of smartphone usage among undergraduate science education with grand mean of 3.5.

Discussion

Findings from the study has revealed that the majority of the undergraduate students were aware of various usages of smartphones in their daily activities. This finding concurs with the research of Mahmudu and Oyewo (2015) which reported that most students have knowledge about smart phones and also about ICT and are aware on the usage of smartphones for academic purpose.

The finding indicates that attitude of undergraduate science education usage of a smartphone such as it can facilitate the creation of tools, the recording and storing of information for later use, and the improvement of interactive, creative learning techniques, as shown in Table. 3. This study is in agreement with Lee (2021), Rebecca and Williams (2024) students had a positive attitude toward their learning of writing when they use smartphone. Students have access to tools on their smartphones that are relatively similar to those from past research for enhancing the text's quality. The findings of the study are in line with those of Souad (2022), who discovered that utilizing smartphones for learning gives students access to an interactive learning environment.

The finding shows that the majority of the undergraduate science education students agreed with usage of smartphone has a positive impact to their school activities. Smartphones also offer a variety of interaction choices that may be customized to each user's tastes. The results of the current study corroborate those of Faheem, et al. (2021) who found that all students regularly use smartphones to absorb

academic material and attend lectures. The results show a strong correlation between smartphone use and academic achievement. The study's findings concur with those of Ifeanyi and Chukwuere (2018), who found that most undergraduate students use smartphones to communicate with their professors and fellow students. It was found as a result that utilizing smartphones facilitates their completion of coursework and other responsibilities.

The finding revealed that the finding in table 5 demonstrated how using a smartphone has negative impact of smartphone usage among undergraduate science education as it can divert students from their studies and leave room for exam cheating. It also, using apps without complete awareness could lead to the leakage of personal data, which could be quite dangerous. The study supports the findings of Darko-Adjei (2019), whose result revealed that students' use of smartphones has a negative impact on their school activities because of issues like key and screen sizes, unstable internet connectivity, and intrusive calls during class hours, and smartphone freezing during crucial learning moments. It was corroborated with Rebecca and Williams (2024) that using a smartphone can also divert pupils from their study and leave them vulnerable to exam fraud. Furthermore, using apps without complete awareness could lead to the leakage of personal data, which could be quite dangerous.

Conclusion

In conclusion, based on the findings obtained in this study, it is imperative to conclude that, to a great extent, undergraduate science education students of the Federal University of Kashere (FUK) have a great level of awareness on the usage of smartphones for academic activities, as a result of the fact that most of the students can access the Internet connection service, download related academic materials, study related course materials and communicate with lecturers and course mates. However, the usage of smartphone for academic activities has its impact both positively and negatively on the undergraduate science education students due to the fact that it can help improved their reading ability, helped build their academic performance and may help them in participating more in class room activities. But negatively, it smartphone usage has caused distraction during classroom session, while spending more time on cell phone reduces academic performance.

Recommendations

Based on the findings and conclusion above, the following recommendations are made

1. Mobile learning should be incorporated into the school curriculum and be taught at various levels to enhance better knowledge on how to make use of smartphones for academic purpose.
2. There is need for the University to upgrade and expand their wireless Internet connection as to enhance students' access to the Web to download academic materials even while they are at their hostels.
3. In the future, research must be done to find out the impact of smartphones on brain or human head, in the sense that do they cause any biological effects on human head or brain leading to the addiction students are having on them.

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