

Research Article

**ASSESSMENT OF IMPACT OF INFORMATION COMMUNICATION TECHNOLOGY
ON THE ACADEMIC PERFORMANCE OF MEDICAL STUDENTS IN ABSUTH, ABA,
ABIA STATE**

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ABSTRACT

Background: Information and Communication Technology (ICT) has become so entangled in our daily lives and every sphere and sector is influenced including the educational system. It has an impact on the teaching-learning process and performance of students as it avails them with relevant and accessible information that aid them in classrooms and clinics. This impact could either be beneficial or detrimental and it depends on if ICT is utilized in and for academics.

Objective: To assess the impact of ICT amongst medical students of ABSUTH, Aba.

Materials and methods: This was a descriptive cross-sectional study conducted among 412 students from ABSUTH, Aba. Research instruments were structured and self-administered questionnaires. Data collected was analyzed using Statistical Package for Social Sciences (SPSS) version 26.0

Result: Our findings revealed that majority (94.4%) were of the opinion that ICT improves academic performance. Majority of the respondents were of the opinion that the use of WhatsApp (67.6%), E-books (81.2%), E-library (53.2%) and Smartphone (85.9%) had positively affected their academic performance. About 42.9% agreed that the recent use of zoom in academics has improved their academic performance. As regards the 2nd MBBS examination, 74.2% of the respondents opined that the use of ICT helped them pass Anatomy, Physiology and Biochemistry.

Conclusion: Findings from this study indicate that ICT has a positive impact on the academics of medical students.

Keywords: Impact, ICT, Academic performance, Medical students.

INTRODUCTION

Information and Communication Technologies (ICTs) are defined as all devices, tools, content, resources, forums, and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching-learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not only include hardware devices connected to computers, and software applications, but also interactive digital content, internet and other satellite communication devices, radio and television services, web-based content repositories, interactive forums, learning management systems, and management information systems. It includes processes for digitization, deployment and management of content, development and deployment of platforms and processes for capacity development, and creation of forums for interaction and exchange.¹ ICTs have changed the way people live, work, play, communicate and learn, impacting the construction and distribution of knowledge and power around the world. ICT can impact student learning when teachers are digitally literate and understand how to integrate it into curriculum.² ICT is dynamically changing the society. Every sphere and sector is affected and influenced heavily and the educational system is not left out.

According to Basri WS et al³, the student's academic performance refers to the enhancement of student's current state of knowledge and skills reflected in their GPA and also in formulation of their personality and academic growth. Students use technology on a daily basis. Among different ICT tools used by students, cell phones; tablets and small laptops are the commonest.⁴ Modern smartphones provide students with immediate, portable access to education-enhancing programs.⁵ The recent years have seen the expansion of mobile technology in educational field. Today almost all students have a mobile phone with a capacity to search for information.⁶

The link between the ICT use and student's academic performance has been the focus of research. But the results are conflicting.⁷ Shieh, Chang and Liu⁸ highlighted that the implementation of the technology tools alone may not be sufficient to improve students' performance and achievement.

Academic research is continually attempting to assess the impact of ICT on student`s academic performance. Whether the effect of ICT on education is positive or negative is still unclear.⁷ Despite the general acceptance that ICTs are changing ways of learning, empirical research conducted does not consistently verify the efficacy of such changes.⁹

Research by Lepp et al¹⁰ suggests that many students perceive the cell phone primarily as a leisure device, and most commonly used cell phones for social networking, surfing the internet, watching videos and playing games. If typically utilized for leisure than education, the cell phones may disrupt learning within academic settings.¹¹ Lei. J¹² suggested that even though technology use showed a significant positive association with students' learning habits, these technology uses had no significant influence on their academic outcomes.

A study carried out on the influence of ICT on the academic performance of psychology students of Imo State University revealed there was no significant influence.¹³ A research carried out on Social Media and Academic Performance of Business Education in 4 universities in South East (SE) Nigeria showed that 27% of respondents agreed that the use of Facebook for academic work affected them positively. 73% indicated that using Facebook affected them negatively.¹⁴ A research carried out on the effect of Facebook and online social media and social networking service on student's academic performance showed that 26% of respondents agreed that the use of Facebook affected their academics positively, 32% are not affected in anyway while 42% are affected negatively. This implies that students' activities on Facebook have effect on their academic performance.¹⁵

Kolan et al¹⁶ revealed that despite the fact that most students do not use social media for academic purposes, they use them for academic related activities such as academic discussions with lecturers and course-mates, exchanging information on class activities and also for retrieving information for class assignments. A majority of the respondents disclosed that their social media use had positive impacts on their academic work. They also indicated that their formation of online groups and participation in academic group discussions enhanced their understanding of topics treated in class. On social media addiction, some students disclosed that they were indeed addicted to social media and results in distraction from their studies.

In contrast, results from the research carried out on ICT facilities utilized and Business Education students' academic performance in Rivers State Universities revealed that there is a moderate positive relationship between ICT facilities utilized and students' academic performance and also a high positive relationship between ICT competency and academic performance.¹⁷ A study carried out on undergraduate students of Michael Okpara University of Agriculture (MOUAU) examined internet awareness and use. About forty-three percent (43.3%) of the respondents claimed that the internet has exercised very high level of impact on them, 29.9% claimed that the impact is simply high. 14.7% of the respondents agreed that the impact is low while 8.5% asserts the internet has very low level of impact on them. Surprisingly, 3.6% of the respondents indicated that the internet has no impact on them.¹⁸

On the impact of internet on academic performance of students in selected tertiary institutions in Nigeria, it revealed that majority of the respondents (90%) indicated that with the help of the internet, their Grade Point Average (GPA) has improved and 8% believed it improved remarkably.¹⁹ The study of students of the University of Ilorin revealed that 38 (9.9%) were of the opinion that the internet does not contribute towards their academic excellence, whereas as many as 347 (90.1%) held a contrary view that the internet help them in solving their academic problems.²⁰

A study carried out in the University of Maiduguri, Nigeria, reported that 79% of respondents accepted that their academic performance has been improved by using the internet, and while 13% believed otherwise, 8% of the respondents were neutral. The study further revealed that 8% of the respondents believed that their GPA has improved remarkably as a result of the internet, 6% agreed that their GPA has been declining, 28% responded that it aids the mind preparing better for Continuous Assessment (CA) and semester examination while 22% were indifferent about the options and therefore did not respond.²¹

With regards to whether the usage of materials from Wikipedia for research has helped improve the grades of students of University of Ghana, 63 (32.0%) of respondents strongly agreed, 83 (42.1%) agreed, 39 (19.8%) disagree and 12 (6.1%) strongly disagreed.²²

In Uganda, a study was carried out on the impact of ICT on student's academic performance. The results obtained showed that 90% of the administrators agreed that the presence and accessibility of ICT resources in schools can help in the improvement of students' academic performance while only 10% disagreed.²³ In Malaysia, South-East Asia, students create platforms for their various class groups to share information and interact with their teachers as well as for announcements and reminders for assignments etc. Teachers or lecturers are also not left out in the creation and participation of platforms for sharing course contents with their students as well as linking up with their fellow lecturers in other institutions for effective collaboration and enhancement of pedagogical activities in order to improve academic performance of students.²⁴

A study carried out amongst students in India, showed that 77.33% of the students were in favour of incorporating ICTs into academics. 70.66% felt that ICT is important in professional learning while 66.66% of the students were of the opinion that ICT had positive impact on academics, 16% of them thought it had negative impact and 21.33% students thought it had no impact on academics.⁷

Conflicting reports about the effect of ICT on student's academic performance exists. Therefore, the results from this study will give an insight into the issue.

METHODOLOGY

The study was a descriptive cross-sectional study carried out amongst 400-600 level students of Medicine and Surgery department of Abia State University Teaching Hospital, Aba (ABSUTH). Self-administered questionnaires were used in obtaining information from consenting participants, using simple random sampling technique. The sample size was determined using the formula; $N = (Z^2 P Q) / D^2$ giving a total of 364. Hence the minimum sample size was adjusted to 404. A total of 412 questionnaires were distributed to the study participants. However, 410 completed questionnaires were retrieved.

RESULTS**Table 1: SOCIO-DEMOGRAPHIC VARIABLES OF RESPONDENTS**

VARIABLES		FREQUENCY (N=410)	PERCENTAGE (%)
Age (in years)	15-20	34	8.3
	21-25	269	65.6
	26-30	77	18.8
	31-40	19	4.6
	41-45	11	2.7
Gender	Male	204	49.8
	Female	206	50.2
Level in medical school	400	149	36.3
	500	183	44.6
	600	78	19.1
Marital status	Married	54	13.1
	Single	352	86.8
	Divorced	2	.5
	Separated	2	.5
Residence	Urban	364	88.8
	Rural	46	11.2

Table 1 above shows the socio-demographic variables of the respondents. Majority of the students (65.6%) were within the age range of 21-25 years. About 204 (49.8%) students were male, while 206 (50.2%) students were female. Also, majority of the students were 500 level medical students (44.6%).

TABLE 2: WHAT IS THE USEFULNESS OF ICT IN ACADEMIC ACTIVITIES?

VARIABLE		FREQUENCY N=410	PERCENTAGE (%)
What is the usefulness of ICT in academic activities?	improves academic performance	387	94.4
	worsen academic performance	13	3.2
	has no effect	10	2.4

Table 2 shows that ICT is useful in improving the academic performance in 94.4%, 3.2% are of the opinion that it worsens academic performance, while it is has no effect in 2.4%.

TABLE 3: HOW HAS THE USE OF ICT AFFECTED YOUR ACADEMIC PERFORMANCE?

VARIABLE		FREQUENCY N=410	PERCENTAGE (%)

Facebook	Negatively	51	12.4
	Positively	110	26.9
	no effect	198	48.3
	I don't know	51	12.4
WhatsApp	Negatively	42	10.0
	Positively	277	67.6
	No effect	59	14.4
	I don't know	32	8.0
E-books	Negatively	19	4.7
	Positively	333	81.2
	No effect	32	7.8
	I don't know	25	6.3
Zoom	Positively	176	42.9
	Negatively	103	25.1
	No effect	82	20.0
	I don't know	49	12.0
E-library	Positively	218	53.2
	Negatively	20	4.9
	No effect	115	28.1
	I don't know	57	13.8
Smartphones	Positively	352	85.9
	Negatively	22	5.4
	No impact	19	4.6
	I don't know	17	4.1

Table 3 shows that the use of different ICT tools has its own effect on the academic performance of students.

It shows that Facebook has no effect on the academic performance in a greater percentage (48.3%), while 12.4% and 26.9% are of the opinion that it affects them negatively and positively respectively. About 12.4% don't know the effect of Facebook on their academics.

It also shows that a relatively high percentage, 67.6%, are of the opinion that WhatsApp has positively affected them, with 14.4%, 10% and 8%, believing that it has no effect, affects them negatively and don't know the effect on their academics respectively.

The use of e-books on academic performance reveals that 81.2%, 4.7% and 7.8% have a positive, negative and no effect respectively. The remaining percentage (6.3%) doesn't know the effect of e-books on their academics.

About 42.9% of students agree that the use of zoom has improved their academics, 25.1% don't agree with this, 20% believe it has no effect, while 12% don't know its effect.

The table reveals also the effect of the use of e-library. 53.2% believe it has positively impacted them and this is in contrast to 4.9% who believe it has negatively impacted them. The remaining percentage believes that it has no impact (28.1%), and few don't know of its effect (13.8%). Smartphones have positively impacted 85.9%, negatively impacted 5.4%, no impact on 4.6% and 4.1% don't know of its effect.

TABLE 4: HOW DID THE USE OF ICT FOR ACADEMICS IMPACT YOUR 2ND MBBS EXAMINATION?

VARIABLES (PASS 2ND MBBS)	FREQUENCY	PERCENTAGE
	(N =410)	(%)

Anatomy, Physiology and Biochemistry	304	74.2
Anatomy and Physiology	21	5.1
Anatomy and Biochemistry	10	2.4
Biochemistry and Physiology	9	2.2
Only one course	17	4.1
No course	16	3.9
No effect	33	8.1

Table 4 shows the effect of ICT on the 2nd MBBS result, with the highest percentage (74.2%) showing that it helped them pass their 3 courses, 5.1% passed anatomy and physiology, 2.4% passed anatomy and biochemistry, 2.2% passed biochemistry and physiology, 4.1% passed only one, 3.9% passed none using ICT and it had no effect on 8.1%.

DISCUSSION

This study aimed at assessing the impact of the use of ICT on the academic performance of medical students in ABSUTH, Aba. Majority of the participants in this study fall within the age bracket of 21-25 years of age (65.6%). Majority (94.4%) of the respondents opinioned that ICT improves their academic performance. Evidenced by the 74.2% the student who passed Anatomy, Physiology and Biochemistry in their 2nd MBBS examination with the help of ICT. This finding is similar to the study that reported that 90% of the respondents had improved GPA as a result of

use of the internet,¹⁹ and the result that reported 90.1% (34.7%) solved their academic problems with the help of the internet.²⁰

The observation from this study is higher when compared to the findings from a study carried out amongst undergraduate students of MOUAU which reported that internet exercised 43.3% and 29.9% of very high and high level of impact respectively on their academic performance,¹⁸ the 79% from the study conducted in University of Maiduguri that reported an improved academic performance by using the internet²¹ and the 66.6%, of positive academic impact with the use of ICT had positive impact on academics.⁷ It is also higher than the result obtained in a Ghanaian study where 32.0% and 42.1% of the respondents strongly agreed and agreed respectively that the usage of Wikipedia for research improved the grades of students.²²

The disparity could be attributed to access, interest and exposure to ICT facilities, faster and advancing Technology and the fact that different generations are exposed to different facilities.

Contrary to the observation in this study, a study carried out among Psychology students of Imo State University reported no significant influence of ICT on the academic performance of the students.¹³ This may be related to ignorance on how to use the internet for academic related information and research as there are many different activities ongoing in the internet.

Concerning the effect Facebook has on academic performance, 48.3% of our respondents opined that it has no effect on their academic performance whereas 26.9% and 12.4% reported that it has a positive and negative effect respectively. This is comparable to the finding in a study which revealed that 26% of respondents agreed that the use of Facebook affected their academics positively, 32% are not affected in anyway while 42% are affected negatively.¹⁵

It is also comparable to the result obtained in a research carried out in 4 universities in SE Nigeria which showed that the use of Facebook had negative effect on the academic work of majority (73%) of the respondents.¹

The use of WhatsApp positively affected the academic performance of the majority (67.6%) of our respondents. It is contrary to the study where over 53% of respondents reported no significant association between GPA and the use of WhatsApp²⁵

The negative impact of social media use (Facebook and WhatsApp) on academic performance may be attributed to engagement in frivolous activities and recreational contents instead of educational contents whilst using the social media. According to Lepp et al,¹⁰ many students perceive the cell phone primarily as a leisure device, and most commonly use cell phones for social networking, surfing the internet, watching videos and playing games. If typically utilized for leisure than education, the cell phones may disrupt learning within academic settings.¹¹

CONCLUSION

From the assessment of the study conducted, there is a positive impact of ICT on the student's academic performance especially when used for learning purposes. This is evidenced by the 74.2% of respondents that passed Anatomy, Physiology and Biochemistry in their 2nd MBBS examination.

RECOMMENDATION

1. Students should learn to use ICT mainly for academic purposes as It covers a wide range of easily accessible and relevant information, which if utilized, will solve problems of learning.
2. Lecturers should be encouraged to infuse ICT into teaching-learning process. This promotes student's interest, confidence, skill, knowledge, adaptation and most importantly, positive use of ICT for academic purposes.

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