



Influence of social media on the academic performance of undergraduate students of Abubakar Tafawa Balewa University Bauchi-Nigeria

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Abstract

Background: The globe is commemorating today's advancements in information and communication technologies (ICTs), but as it stands, technology has both advantages and disadvantages. The debatable question is, does the use of social media have a negative or positive effect on students' academic performance? This study assessed social media usage and its effect on academic performance among Undergraduate students of Abubakar Tafawa Balewa University, Bauchi-Nigeria.

Methods: A descriptive cross-sectional study design was employed among 423 undergraduate students from the three Faculties of Abubakar Tafawa Balewa University, Bauchi-Nigeria. The data was collected using self-administered semi-structured questionnaire, analyzed using SPSS version 23.0 and the level of significance was set at 0.05.

Results: Majority of the respondents were within the age of 18-26 years, the respondents with frequent use of social media, exposure to social media and addictiveness to social media were 82.0%, 74% and 65% respectively. Age, faculty, department, religion and ethnicity were the factors associated with use of social media while academic year, faculty, department and ethnicity were the factors associated with exposure to social media and faculty, department, religion and CGPA were also associated with addictiveness to social media. Department, CGPA and religion were the predictors of influence on the use of social media among the respondents. MBBS students had 13% less likelihood of having high addictiveness to social media than the other students with $p=0.009$ [OR=0.87, 95% CI (0.304-0.842)].

Majority of the respondents with CGPA of 1.00-3.40 have 42% less likelihood of having high addictiveness to social media compared to other students with $p=0.022$ [OR=0.58, 95% CI (0.375-0.925)]. Islam had 46% less likelihood of having high addictiveness to social media than the other students with $p=0.014$ [OR=0.54, 95% CI (0.334-0.881)] but none was significant for frequent user and exposure to social media on logistic regression but none was significant for frequent user and exposure to social media.

Conclusion: There was high frequent users and addictiveness to social media among the respondents while the exposure to social media was low. Age, faculty, department, religion and ethnicity were the factors associated with use of social media while academic year, faculty, department and ethnicity were the factors associated with exposure to social media and faculty, department, religion and CGPA were also associated with addictiveness to social media. The predictors of influence of social media on academic performance among the respondents were department, CGPA and religion. There is need for counseling to the low academic performing students to enable them improves their CGPA.

Keywords: Social media, academic performance, undergraduate students, Bauchi

Introduction

The present and speedy advancement of the internet have made the world appears to be a global village where the spread of information has become uncontrollable and reaches the many people at a click of a computer button within no time. The past two decades have witnessed tremendous technological revolution and this phenomenon has affected all human activities which includes educationally, politically, economically, socially, financially and culturally. Social media is an internet web-based platform that allows individuals, organizations or institutions to create an account for interaction, information sharing, discussions, and exchange of ideas. Today the world is commemorating today's advancements in information and communication technologies (ICTs), which have expanded the reach of communication. Without a question, modern communication technology has made the entire world a "global village" [1].

The new digital communication channels that enable users to share information in a user-oriented environment and produce content as both consumers and providers requires which is usually computer mediated tools that allow people or companies to create, share exchange information, career interest, ideas, pictures/ virtual communities and networks [2]. social media is a group of internet-based applications that build on the ideological and technological foundations of web 2.0 and that allow the creation and exchange of user generated content [2]. Social media is a great information and communication technology and it becomes popular globally as a tool of social communication. This is a platform to share people's ideas, views, and opinions and exchange information with others in a global community using various networking sites such as Facebook, WhatsApp, Twitter, YouTube, etc [3].

In recent times various methods of getting or sharing information's have been a major stay in the minds of students and the world at large thereby causing a lot of

drastic measure by students, teacher and even educational administrators at large. It is therefore of great importance to explore some of the trending issues facing students' academic performance as a result of social media. Students at all levels of learning now have divided attention to studies, as a result of available opportunities to be harnessed from social media. Whether these opportunities promote studies is a question that needs to be answered [4].

The debatable question is, does the use of social media have negative or positive effects on students' academic performance? This study examined social media usage and its effect on academic performance of Undergraduate students of ATBU.

Methods

Study Area

Bauchi State was created on 3rd February, 1976 and is made up of 20 Local Government Areas. Located in the north eastern geopolitical zone of Nigeria 10.30@N 10.00@E. Bauchi State with an estimated population of 8,670,000 in the year 2023 with 3.88% growth rate [49].

Abubakar Tafawa-Balewa University (ATBU) is a Federal University of Technology, and one of the sixteen (16) tertiary institutions that was established in 1980, It has two campuses; Yelwa and Gubi campus (the permanent site) and also has its clinical arm at Abubakar Tafawa Balewa university teaching hospital, Bauchi. Yelwa campus have about 11 hostels while Gubi campus have about 9 hostels and 2 hostels (each for male and female) at the clinical arm. Has eight faculties namely; Engineering, Science, Environmental Technology, Agriculture, Management Technology, School of Technology Education and college of medicine [50].

Study design

The study design was a descriptive cross-sectional study.

Study population

The study population was the registered undergraduate students of Abubakar Tafawa Balewa University, Bauchi with at least a social media account and spent at least 6 semesters in the University were included in the study but students that are absent during the study were excluded.

Sample size

Minimum number of respondents was obtained using the Cochran formula below:

$$n = \frac{[Z^2PQ]}{D^2}$$

Where: n = Minimum sample size, Z= Standard normal deviate at 95% confidence interval which is 1.96 and P= Prevalence of influence of social media on students' academic performance on a previous study was 52% [10]. In anticipation of 10% non-response, the minimum sample size was 423.

Sampling technique

Multistage sampling technique was used for the four stages from the selection of faculties, department, academic year and participants.

Study instrument and data collection method

The study instrument was self-administered semi-structured questionnaire used to obtain data from the consenting participants that has the following sections: - Socio-demographic data, Use of social media and its influence on the academic performance of undergraduate students, Students' exposure to social media and its influence on the academic performance of undergraduate students and Student's addictiveness and its influence on the academic performance of undergraduate students of ATBU.

Data Analysis

Data obtained was appropriately sorted, coded, categorized, entered and validated to ensure accuracy and consistency. The questionnaire was coded before carrying the analysis, data was analyzed using IBM SPSS version 23.0 for analysis to generate descriptive and statistical information that was presented in form of tables, figures, bar chart & frequency distribution tables.

Univariate analysis: This included the use of percentages and charts for qualitative variables such as; sex, location of school, place of resident. Quantitative variables such as; Age, CGPA were summarized using frequency, mean and standard deviation (SD).

Bivariate analysis: Pearson's Chi-square test or Fisher's exact test was used to test for association of independent and dependent variables such as; age, sex, place of resident, location of institution, exam score, knowledge of Social Media. p-value of <0.05 was considered as statistically significant.

Multivariate analysis: Logistic regression analysis was used to determine the predictors of exposure, addictiveness, use and influence of social media on academic performance by recruiting the variables that were significant at bivariate level with p-value of <0.05 considered as statistically significant.

Ethical consideration

An introductory letter was obtained from the Department of Community Medicine, ATBU and ethical approval was obtained from the Research Ethics Committee of ATBU. Informed consent was sought from all the study participants before carrying out the study and Helsinki declaration was respected throughout the study.

The respondents m has mean age 25.82 and standard deviation ± 3.986 , majority were within the age bracket of 18-26 (60.8%) and slightly more than half of respondents were from the School of Science (74.7%) and slightly more respondents from the department of Biochemistry (40.2%). Most of the respondents were from 400 level (44.9%) and 500 level (46.3%). Most of the respondents practice Islam (78.5%), Christianity (18.2%) and others (3.3%). More than half of the respondents were Hausa (62.9%), followed by Yoruba (17.0%) others (11.8%) and Igbo (8.3%) while the CGPA of most respondents was within 3.41-5.00 (60.5%).

Results

Table 1: Socio-demographic characteristics of the respondents:

Age		
Variables	Frequency	Percentage (%)
18-26	257	60.8
27-35	164	38.8
36-45	2	0.4
Total	423	100.0
Gender		
Males	214	50.6
Females	209	49.4
Total	423	100.0
Academic year		
400 level	190	44.9
500level	196	46.3
600level	37	8.7
Total	423	100.0
Faculty		
School of science	316	74.7
College of medicine	107	25.3
Total	423	100.0
Department		
MBBS	114	27.0
microbiology	139	32.9
biochemistry	170	40.2
Total	423	100.0
Religion		
Islam	332	78.5
Christianity	77	18.2
others	14	3.3
Total	423	100.0
Ethnicity		
Hausa	266	62.9
Igbo	35	8.3
Yoruba	72	17.0
others	50	11.8
Total	423	100.0
CGPA		
1.00-3.40	167	39.5
3.41-5.00	256	60.5
Total	423	100.0

Grading of the use, exposure and addictiveness to social media among undergraduate students

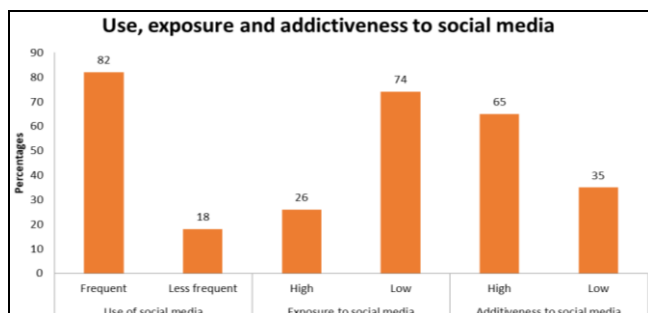


Fig 1: Use, exposure and addictiveness to social media among undergraduate students

A bar chart showing the use, exposure and addictiveness to social media among the respondents in ATBU, Bauchi as (82.0%), (18.0%), (74%), (26%), (65%) and (35%) were frequent users, less frequent users, low exposure, high exposure, high addictiveness and low addictiveness to social media respectively.

Table 2: Factors associated with the use of social media among the respondents in ATBU Bauchi

Variables	Use of social media		χ^2	p - value
	Frequent	Less frequent		
Age				
18-26	196 (75.3)	61 (23.7)	3.285	0.001
27-35	149 (90.9)	15 (9.1)		
Gender				
Male	180 (84.1)	34 (15.9)	1.270	0.311
Female	167 (79.9)	42 (20.1)		
Academic year				
400 level	157 (82.6)	33 (17.4)	0.383	0.845
500 level	161 (82.1)	35 (17.9)		
600 level	29 (78.4)	8 (21.6)		
Faculty				
School of Science	269 (85.1)	47 (14.9)	8.111	0.006
College of Medicine	78 (72.9)	29 (27.1)		
Department				
MBBS	84 (73.7)	30 (26.3)	7.635	0.020
Microbiology	120 (86.3)	19 (13.7)		
Biochemistry	143 (84.1)	27 (15.9)		
Religion				
Islam	276 (83.1)	56 (16.9)	6.688	0.031
Christianity	57 (74.0)	20 (26.0)		
Others	14 (100.0)	0 (0.00)		
Ethnicity				
Hausa	229(86.1)	37(13.9)	11.609	0.009
Igbo	30(85.7)	5(14.3)		
Yoruba	51(70.8)	21(29.2)		
Others	37(74.0)	13(26.0)		
CGPA				
1.00-3.40	130(77.8)	37(22.2)	3.285	0.200
3.41-5.00	217(84.8)	39(15.2)		

Most of the respondents are within the age bracket of 18-26 (75.3%), 27-35 (90.9%) are the frequent users of social media as compared to the age bracket 36-45 (100%). Majority of the respondents that practice Islam (83.1%) and Christianity (74.0%) are frequent users of social media as compared to others (100%). This value is said to be statistically significant (p=0.031)

Also, respondents most of the respondents are Hausa (86.1%), Yoruba (70.8%), Igbo (85.7%) are frequent users of social media as compared to others (74.0%). This value is said to be statistically significant (p=0.009)

In addition, those respondents from School of science (85.1%) are frequent users of social media as compared to those from College of Medicine (72.9%). This value is said to be statistically significant (p=0.006). Most of the respondents from Microbiology (86.3%) and Biochemistry (84.1%) are frequent users of social media as compared to those from MBBS (73.7%). This value is said to be statistically significant (p=0.020).

Table 3: Factors associated with the exposure to social media among the respondents of ATBU Bauchi

Variables	High	Low	χ^2	p-value
Age				
18-26	70 (27.2)	187 (72.8)	1.223	0.491
27-35	39 (23.8)	125 (76.2)		
36-45	1 (50.0)	1 (50.0)		
Gender				
Male	58 (27.1)	156 (72.9)	0.271	0.658
Female	52 (24.1)	157 (75.1)		
Academic year				
400 level	48 (25.3)	142 (74.7)	8.645	0.013
500 level	45 (23.0)	151 (77.0)		
600 level	17 (45.9)	20 (54.1)		
Faculty				
School of Science	69 (21.8)	247 (78.2)	11.285	<0.001
College of Medicine	41 (38.3)	66 (61.7)		
Department				
MBBS	44 (38.6)	70 (61.4)	13.350	0.002
Microbiology	27 (19.4)	112 (80.6)		
Biochemistry	39 (22.9)	131 (77.1)		
Religion				
Islam	92 (27.7)	240 (72.3)	2.594	0.299
Christianity	16 (20.8)	61 (79.2)		
Others	2 (14.30)	12 (85.7)		
Ethnicity				
Hausa	65 (24.4)	201 (75.6)	7.982	0.047
Igbo	4 (11.4)	31 (88.6)		
Yoruba	25 (34.7)	47 (65.3)		
Others	16 (32.0)	34 (68.0)		
CGPA				
1.00-3.40	38 (22.8)	129 (77.2)	1.515	0.257
3.41-5.00	72 (28.1)	184 (71.9)		

Most of the respondents, Hausa (75.6%), Yoruba (65.3%), others (68.0%) have low exposure to social media as compared to Igbo (88.6%). This value is said to be statistically significant ($p=0.047$)

In addition, those respondents from School of science (78.2%) have low exposure to social media as compared to those from College of Medicine (61.7%). This value is said to be statistically significant ($p<0.001$). Most of the

respondents from Microbiology (80.6%) and Biochemistry (77.1%) have low exposure to social media as compared to those from MBBS (61.4%). This value is said to be statistically significant ($p=0.002$). Most of the respondents from 500 I (77.0%) and 400I (74.7%) have low exposure to social media as compared to those from 600 I (54.1%). This value is said to be statistically significant ($p=0.013$).

Table 4: Factors associated with the addictiveness to social media among the respondents of ATBU Bauchi

Variables	High	Low	χ^2	p-value
Age				
18-26	176 (68.5)	81 (31.5)	3.115	0.223
27-35	99 (60.4)	65 (39.6)		
36-45	1 (50.0)	1 (50.0)		
Gender				
Male	133 (62.1)	81 (37.9)	1.834	0.187
Female	143 (68.4)	66 (31.60)		
Academic year				
400 level	132 (69.5)	58 (30.5)	3.210	0.206
500 level	123 (62.80)	73 (37.2)		
600 level	21 (56.8)	16 (43.2)		
Faculty				
School of Science	217 (68.7)	99 (31.3)	6.454	0.014
College of Medicine	59 (55.1)	48 (44.9)		
Department				
MBBS	64 (56.1)	50 (43.9)	13.515	<0.001
Microbiology	107 (77.0)	32 (23.0)		
Biochemistry	105 (61.8)	65 (38.2)		
Religion				
Islam	227 (68.4)	105 (31.6)	8.903	0.011
Christianity	39 (50.6)	38 (49.4)		
Others	10 (71.4)	4 (28.6)		

Ethnicity				
Hausa	181 (68.0)	85 (32.0)	2.708	0.445
Igbo	20 (57.1)	15 (42.9)		
Yoruba	44 (61.1)	28 (38.9)		
others	31 (62.0)	19 (38.0)		
CGPA				
1.00-3.40	123 (73.7)	44 (26.3)	8.596	0.003
3.41-5.00	153 (59.8)	103 (40.2)		

Respondents from School of Science (68.7%) have high addictiveness to social media as compared to those from College of Medicine (54.1%). This value is said to be statistically significant (p=0.014). Most of the respondents from Microbiology (77.0%) and Biochemistry (61.8%) have high addictiveness to social media as compared to those from MBBS (56.1%). This value is said to be statistically significant (p<0.001)

In addition, respondents within CGPA bracket 1.00-3.40 (73.7%) have high addictiveness as compared to those within 3.41-5.00 (59.8%). This value is said to be statistically significant (p-value=0.003). Majority of the respondents that practice Islam (68.4%) and Christianity (50.6%) have high addictiveness to social media as compared to others (71.4%). This value is said to be statistically significant (p=0.011).

Table 5: Logistic regression showing predictors of addictiveness of social media among the study respondent in ATBU Bauchi

Variables		Odd ratio	95% Confidence interval		p-value
			Lower	Upper	
Faculty	School of Science	0.742	0.288	1.911	0.537
	College of Medicine	1			0.775
Department	MBBS	0.870	0.335	2.262	0.009
	Microbiology	0.506	0.304	0.842	
	Biochemistry	1			
CGPA	1.00-3.40	0.589	0.375	0.925	0.022
	3.41-5.00	1			
Religion	Islam	0.542	0.334	0.881	0.014
	Others	1			

Department, CGPA and religion were the predictors of influence on the use of social media among the respondents. MBBS students had 13% less likelihood of having high addictiveness to social media than the other students with p=0.009 [OR=0.87, 95% CI (0.304 -0.842)].

Majority of the respondents with CGPA of 1.00-3.40 have 42% less likelihood of having high addictiveness to social media compared to other students with p=0.022 [OR=0.58, 95% CI (0.375-0.925)]. Islam had 46% less likelihood of having high addictiveness to social media than the other students with p=0.014 [OR=0.54, 95% CI (0.334-0.881)] but none was significant for frequent user and exposure to social media on logistic regression.

Discussion

This study was done to assess the influence of social media on the academic performance of undergraduate students of Abubakar Tafawa Balewa University Bauchi. The study found that predominant age group of the respondents (60.8%) was 18-26 years of age, with a mean age of 26 years and standard deviation of ±4years. This shows that majority of the respondents are exhibiting a considerably

greater propensity than their older counterparts to use social media which is in keeping with similar studies done in Harvard [13] with 51% of people age group 18-24 and Lagos [1]. This is in contrast with a study conducted in Ghana with majority of participants between the age bracket of 14-20(76.9%).

Majority of the respondents were within the age of 18-26 years, the respondents with frequent users of social media, exposure to social media and addictiveness to social media were 82.0%, 74% and 65% respectively. Age, faculty, department, religion and ethnicity were the factors associated with use of social media while academic year, faculty, department and ethnicity were the factors associated with exposure to social media and faculty, department, religion and CGPA were also associated with addictiveness to social media.

Most of the participants are Males (50.6%) and females (49.4%) which is similar to a global study, Males (53.5%) and Females (46.5%) [42] and in contrast with a study conducted in Jigawa (Males70.6%, Females29.4%) [22].

Most of the participants are Muslims (78.5%), Christians (18.2%) and only a few are others (3.3%) and can be explained by the predominance of Muslim communities in Northern Nigeria which is in similar to a study in Taraba [2]. Majority are Hausa (62.9%) which is attributed to the predominance of Hausa in the study area which is similar with a study conducted in Jigawa [22].

The study shows majority of the participants are frequent users of social media about 82.0% which is similar to a study conducted in USA [13] and Bauchi [49]. Majority of the participants have low exposure to social media about 74% but compared to other studies performed in Taraba [10], Lagos [1], Bauchi [49] and China [35] respondents tend to have high exposure to social media.

Majority of the participants have High Addictiveness to social media about 65% which is similar study to conducted in Zaria [44] as respondents tends to spend more hours on social media and it has bad influence on their academic performance. In another study conducted in Zambia [37] students tend to have low addictiveness to social media (70.2%) and it has influenced their academic performance positively.

Bivariate Analysis showed significant association between users of social media and age, religion, ethnicity, faculty and department with p-value of 0.001, 0.031, 0.009, 0.006 and 0.020 respectively. 347 out of 423 respondents are frequent users while only 76 are less frequent users, among which 196 are between the age ranges of 18-26 which have the frequent users followed by 149 age range 27-35 as compared to age bracket of 36-45 which have only 2 frequent users. Hence age is a good predictor of the use of social media among undergraduate. Majority of the respondents are frequent users with Muslims having the highest number of 276 out 347, followed by Christians with 57 and others with only 14 frequent users. Hausa are

frequent users of social media compared to other tribes with 229 out 347 respondents. Participants from Faculty of Science are frequent users of social media when compared to respondents from college of medicine with 269 and 78 frequent users respectively. Most of the respondents from Microbiology and Biochemistry are frequent users of social media as compared to those from MBBS which have only 84 out 347. The above variables are good predictors of the use of social media.

Ethnicity, Faculty, Department and Academic year are good predictors of exposure with p-value of 0.047, 0.001, 0.002 and 0.013. Whereas age, gender, religion and CGPA are bad predictors of exposure. This is similar to a study conducted among the undergraduate students in the University of Lagos ^[1]. The respondents from 4001 shows to have more exposure than other respondents from 5001 and 6001. Department, CGPA and Religion are good predictors of addictiveness and its influence of social media. MBBS students had 13% less likelihood of having high addictiveness to social media than the other students with $p=0.009$ (CI 0.304 -0.842). Majority of the respondents with CGPA of 1.00-3.40 have 42% less likelihood of having high addictiveness to social media compared to other students with $p=0.022$ (CI 0.375-0.925). Islam had 46% less likelihood of having high addictiveness to social media than the other students with $p=0.014$ (CI 0.334-0.881), this as a result of predominance of the religion in Northern Nigeria. The predictors of the use and exposure to social media academic performance of undergraduate students of ATBU, the variables are not statistically significant when compared to other studies conducted in Taraba ^[2], Jigawa ^[22], Global data ^[40] and Turkey ^[9].

Conclusion

This study was able to show that there was frequent use and high addictiveness to social media among the study participants, however there was relatively low exposure to social media when compared with the other two variables. Age, faculty, department, religion and ethnicity were the factors associated with use of social media while academic year, faculty, department and ethnicity were the factors associated with exposure to social media and faculty, department, religion and CGPA were also associated with addictiveness to social media. The predictors of influence of social media on academic performance among the respondents were department, CGPA and religion.

Authors' contributions: Contributed equally

Conflict of interest: Nil

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