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Dynamics of Social Media on the Academic Performance of Students in Private Universities in Ghana

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ABSTRACT

In this technological era of the Internet becoming the backbone for achieving educational success, the development of social media is an asset for the academic development of students in tertiary institutions. The logit model was used to determine the dynamics of social media on the academic performance of students in private tertiary institutions in Ghana. The Statistical Package for Social Sciences and STATA were the tools employed for coding and analysis. Questionnaires were created using Google forms and administered to 900 participants. The results revealed that hours spent by students at the library have reduced drastically. It is worth noting that whether students spend less or more time on social media, their academic performance worsened. This situation was explained by students spending more time on social media for networking and not for academic purposes. Two reasons can be given for such poor performance, that is, whether students are just not able to use the social media platforms to their advantage or the platforms do not provide relevant information that can meet their academic needs. Therefore, the study concluded that Information and Communication Technology can have a lot of benefits if well managed and integrated but also on condition that a clear online policy must be established to check the conduct of students.

Keywords: *social media; information and communication technology; academic performance; Internet; logit model.*

INTRODUCTION

Access to information has been improved widely through the Internet such that students no longer use physical libraries as regularly as they used to. This is because of access to online libraries and most importantly the advent of social media. Even though this is the case, Gbemi-Ogunleye (2016) notes that the library could help improve the academic progress of students. Whilst all social media is Information and Communication Technology (ICT), not all ICT is social media. Social media has been known to contribute much to education and has affected students academically. This can be connected to how social media platforms have contributed to the swift sharing of information in this era of COVID-19. The presence of these platforms - Facebook, WhatsApp, and YouTube among others, have been felt more so in terms of updates, information dissemination and daily reportage. However, it is undisputed that there is fake reportage in the content on these platforms. Authenticity and truism of content raises concerns related to the use of these platforms for academic purposes.

In relation to student academic development, specific platforms such as Twitter chats, Pinterest boards, Google classroom, social academic blogs, Facebook groups and classroom Instagram accounts among others are some popular known platforms that aid students in the academic environment, but this is also occurring alongside the general proliferation of social media platforms that do not mainly serve an academic purpose. YouTube for instance provides training and learning

tutorial videos for students and Facebook and Instagram are giving students the chance to share posts and find help for their research work.

Generally, the adoption of ICT has many benefits. Computers are known to make work easier by enabling users to spend less time to achieve desired results, and it also saves cost. Also, the speed, accuracy, online learning, evaluation and assessment of students are some of the major benefits (De Witte & Rogge, 2014). Social media technology, according to Henderson and Bowley (2010), refers to collaborative online applications and technologies that enable participation, connectivity, user-generated content, sharing of information, and collaboration amongst a community of users. Some media that are known to provide social content include YouTube, Facebook, Instagram, WhatsApp, Pinterest, Snapchat, LinkedIn, and Twitter. There are major benefits to be had from use of some of these platforms. The point to establish is that, at one end they serve an educational purpose and an entertainment purpose on the other end. According to Bal and Bicen (2017), social media platforms help in the acquisition and sharing of information. The rapid contribution of social media platforms promotes the growth of businesses through advertisements.

Information and Communication Technology (ICT) happens to be the driver for many instructional triumphs and thus cannot be forgotten about as most of the world's business motivation is ICT. It has been shown that ICT, when used for instructional purposes can help improve on student performance, including their thinking ability. The Ministry of Education, Ghana (2015) notes that ICT will upgrade access to training and greatly improve the nature and coverage of instruction. The motivation behind ICT in education can be categorised into three specific areas: *instructional purpose*, *organization reason* and *individual reason* (Kellenberger and Hendricks, 2000). The advent of Information and Communication Technology (ICT) tools particularly the Internet has also made it possible for lecturers to engage students everywhere, unlike the traditional face-to-face mode of education.

It is worth mentioning, however, that despite the tremendous benefits that students derive from the use of social media, it has also come with its own challenges. Evidence from Venturini (2019), reveals that social media offers a quantum of junk resources, and since there are no means to control these resources, students also tend to use them in their academic exercises.

The study is therefore designed to seek answers to the following questions:

- What are the effects of social media on academic performance?
- Does students' adoption of social media platforms serve their academic purpose?
- What is the effectiveness of students' use of the Internet to search for information on social media platforms?

The study is focused on an empirical examination of students' academic performance which is hypothesized to be explained by the dynamics of social media.

THEORETICAL REVIEW

In this study, we use theories such as the Technology Acceptance Model (TAM) as proposed by Davis, (1989) which specifically addresses individuals' perceptions about the use of a particular technology, which in this case is the adoption of social media by students in tertiary institutions.

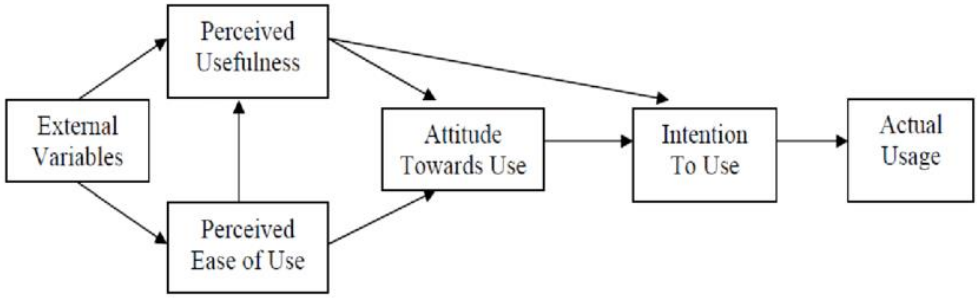

Figure 1: Diagrammatic representation of the TAM model (Adapted from Davis, 1989).

As shown by the relationships in Figure 1, when clients are given a technology or innovation, they are being impacted by two principal factors: Perceived usefulness (PU) and Perceived ease of use (PEOU). The PU suggests that acceptance of an innovation would mean it will improve on an individual's job execution, whilst the PEOU is the point at which an individual's acceptance of the technology means they are liberated from exertion. These two factors affect the actual use of the system, the behavioural intentions, and attitudes. The PU and the PEOU are further impacted by outside factors, which are social, cultural and political elements.

The reasoning from the hypothesis has an immediate connection with the reception of social media adoption by tertiary level students. Using Davis' (1989), concept of the PU and PEOU we note the possibility that they may impact students' choices and whether the utilization of social media in academics will live up to their desires.

LITERATURE REVIEW

Social Media and ICT

Distinguishing between social media and ICT can sometimes be very confusing from a scholarly perspective. The main distinguishing factor between these two is content and media. There are technologies available to ensure that the content is generated on social media and the technology is ICT based.

Social media empowers human connections through innovation. The two most obvious uses of social media networking are showcasing and promoting for political/ideological purposes (UNESCO, 2014). One of the significant points to buttress this notion above is the introduction of second generation, web 2.0. This is basically about how information is presented and disseminated on the web. The changing dynamics of web 2.0 also affects inventions and other technological media. For instance, *WhatsApp (*application) since its inception in 2010 has experienced a few adjustments and changes, including a *status* to show a display picture (dp) in the year 2018. Another example is the message-forwarding feature. This component had no limitations regarding the quantity of contacts or groups that messages could be forwarded to, but since 2019, WhatsApp users have been permitted to advance messages to a limit of individuals or groups. To some extent, social media is seen as an educational tool, but research has also proven otherwise. ICT, over the years, has made a lot of impact given the possibilities for teaching and learning, but although social media can be an important educational tool, access to quality ICT adoption depends on the availability of resources (Basri, Alandejani & Almadani 2018).

Similarly, in an earlier study, Cann, Dimitriou & Hooley, (2011) noted that there may be a blur in the distinction between what is considered working hours for students who spend much of their

time online. Students do not only use it to their advantage but rather visit social networking sites and entertainment platforms.

Despite these assertions, ICT tools have been known to help improve students' academic performance. Asiedu (2017) affirmed that social media is an important tool, and should be adopted at school campuses since it supports resource sharing. Authors, Basri, Alandejani & Almadani (2018) added that students can even use ICT to augment the information shared by their teachers.

Implications of Social Media for Academic Performance

There are several factors that can help to critically measure the implications of social media on students' academic performance. Some researchers have argued that social media is particularly for networking to build relationships (UNESCO, 2014); and so one question had been how effective it can be to enhance the academic performance of students. Therefore, as with any technology built to provide social content, it may not possibly provide a better outcome for students. To ascertain the implications of social media on academic performance in this study, variables such as the frequency of social media networking, hours spent online for research, frequency of usage of the Internet and the library, and the use of social media for academic purposes were investigated.

Studies have shown that technology adoption, and use of social media, can sometimes have both positive and negative impacts on students' academic performance. According to Kolan and Dzandza (2018), the adoption of social media for academic purposes can serve as a good servant but also as a bad master. For instance, it was discovered that students who have used ICT for academic purposes mostly scored higher grades as they are able to access vital information they need to enhance their academic work (Basri, Alandejani & Almadani, 2018). Similarly, in a study on the impact of social media on students' academic performance, Boateng and Amankwa (2016) found that social media greatly enhanced students' academic activities such as group discussions on assignments and course matters. Through social media, students were also able to obtain information on lecture periods and venues. Even though social media over the years has not only remained as an efficient communication tool, it has also helped people to acquire information both locally and internationally with the click of a button and this has facilitated scholarly research too.

Despite the tremendous benefits that come with the use of social media, it is also bedevilled with several negative implications. First, spending too much time on social media has been found to be a major cause of addiction and distraction on the part of students, thereby leading to poor academic performance (Agwi &Ogwueleka, 2018; Kolan and Dzandza, 2018; Owusu-Acheaw & Larson, 2015) Secondly, there is the tendency to assume that students will use social media as a means of entertainment instead of using it for academic purposes. It was for this reason that Acut et al. (2016), in their study, advised that there should be an efficient integration of ICT into the tertiary academic curriculum for a better student performance.

Conversations on utilizing social media for academic purposes are increasing. Be that as it may, little heed has been paid to the ubiquity of online networking in countries like Hong Kong for example, and the adequacy of utilizing existing social media instruments to enhance instruction and learning has not been recognized. However, it is accepted that with ideal checking, inspiration and arranging, online life can be useful to both educators and students over time (Au, Lam and Chan, 2015).

According to Lad (2017), utilizing social media in training students diminishes learning, since students depend on the availability of data via we.b-based networking media to explicitly respond to their assignments, which in the long run will impact learning. At that point additionally, this can prompt poor scholarly execution, since students, who endeavor to perform various tasks, while checking social media destinations, show diminished scholastic execution while studying. Their capacity to focus on their academic tasks is fundamentally diminished by the interruptions that are

achieved by YouTube, Facebook, or Twitter among others. Further, Paul, Baker & Cochran, in 2012 noted a connection between the time spent by students online networking and their academic performance. Time spent on social media adversely affected their academic performance. This also connects well with the findings of Kirschner & Karpinski (2010) that, as time spent on person-to-person communication locales builds, the scholarly exhibition of the students apparently deteriorates and affects their academic performance.

In addition, Truzoli *et* al., (2019) noted that consistent utilization of the Internet may prompt fixation and may lead to loss of core interest. Along these lines, one will most likely be unable to design and have command over important activities while on the web, subsequently making learning troublesome. Explaining further, Truzoli *et* al., (2019) noted that prolonged use may affect the skills of the student. The web has become a worldwide asset and there is for all intents and purposes zero guidelines with respect to what is posted on the web. Consequently there is a higher hazard for scholarly deception with respect to the inventiveness of most scholastic works (Johnson, 2011). Bhamare (2020), likewise noted that social media has a risky effect on the communication and social aptitudes of students especially since communication is accomplished both on the web and offline.

METHODOLOGY

The study was carried out in six private universities in the Greater Accra Region of Ghana. Private Universities in the Greater Accra Region were chosen because of their location in the capital of Ghana, the hub and central location for business and education. The six private universities selected for the study were: Methodist University College, Ghana; Presbyterian University College, Ghana; Central University College; Fountain Head University College, Tema; Ashesi University; and Valley View University.

Participants

The study adopted the quantitative method using a sample of 900 students across levels 100 to 400 from these Universities. Since the population was unknown, the sample size was obtained by considering a normal deviation at the 95% confidence level (1.96) and 5% confidence interval as cited by Mensah (2014) in Garg (2014).

Procedure, tools, and sampling techniques

In the data gathering process, Google forms were utilized to plan the survey and the link shared among students on their campuses on different online networking platforms. Links were shared among students irrespective of level, year of admission or programme. Any tertiary student in the selected institutions were allowed to participate. A snowball strategy as well as probability and convenience sampling techniques were embraced in this examination. With the snowball, the analysts chose respondents from the selected institutions who further identified other prospective students to likewise take part in the data gathering process. As in the probability sampling method, all participants had a nonzero probability to take part in the research. However, since all participants had an equal chance of being selected, the equiprobabilistic sampling approach was maintained as shown in Pimenta et al. (2015) formula; $P = {}^{1}/_{N}$ where P is the probability of having the chance of being selected and N is the size of the target population.

Participants were required to answer the questionnaire items based on accessibility (Suresh et. al, 2011). The responses gathered were analysed after migrating data from Google spreadsheet to SPSS and coded in STATA using the logit statistical method. The method is explained under the heading, econometric methodology. Results were presented in a tabular format for discussion.

During the analysis of the data, each question was assigned a reference category for each of the responses to facilitate ease of discussion on their impact on the variables.

Econometric Methodology

Studies have shown that empirical studies in which the dependent variable (that is, unknown variable or the regressand) is a qualitative and dichotomous or a binary variable often use the binary models of probit and logistic (Greene, 2003). This is because the relationship between a binary dependent variable (which is expected to be a discrete variable) and a set of predictor(s)/explanatory variable(s) Linear Probability Model (LPM), logit and probit are employed. The justification for the choice of the logit/probit LPM is that LPM of the standard (classical) linear regression requires that the dependent variables are of metric (interval or ratio) scale and continuous. When the dependent variable is binary, the LPM which allows for the use of Ordinary Least Square (OLS) to estimate the parameters is plagued with a number of challenges. It is characterised by hetroscedasticity, non-normality of the disturbance term, low R^2 and non-fulfilment of $0 \leq (Y_i/X_i) \leq 1$ restriction of binary models. Though these challenges can be surmounted with a number of remedies, the LPM assumes that the marginal or incremental effect of the explanatory variable remains constant throughout (Gujarati 2004). This makes the LPM of the OLS an unattractive binary model of estimation, though it is the simplest. The logit and probit models overcome the problems that the LPM poses. When using micro level data, the standard OLS estimation is not feasible for both the logit and probit. The maximum likelihood method is used to estimate the parameters.

Equation (1) summarises the nexus between students' academic performance and social media and academic technology:

$$Y_i = \alpha_0 + \beta_i' X_i + \delta_i' Z_i + \varepsilon_i$$

Where:

Y_i is dependent variable (students' academic performance) with only 2 outcomes,

X is a vector of variables capturing the explaining variables of interest

Z_i are the other independent variables that explain students' academic performance

α0 is the intercept,

β_i are the coefficient of the explanatory variables of interest

δ_i are the coefficient of the explanatory variables other than those of interest

The logit (natural logs) regression expresses the odds of the unknown binomial variable as linearly dependent on the explanatory variables and this linear relationship is derived from the logistic Cumulative Density Function (CDF).

Given that the probability density function (λ) of logit distribution is *(l)* $=\frac{e^{-1}}{(1+e^{-1})^2}$, $-\propto<l<\propto$ **a**nd that the cdf (∧) of logit distribution is $P=p\,(L \leq x', \beta) = \wedge\,(x', \beta) = \frac{1}{1+e^{-(x',\beta)}}$

The Pr $[y_i = 1|x] = p = \wedge\,(x', \beta) = \frac{expexp\ (x',\beta)}{1+(x',\beta)}$

$$P_r\,[y_i = 0|x] = 1 - p = 1 - \wedge(x', \beta) = 1 - \frac{expexp\ (x',\beta)}{1+(x',\beta)} = \frac{1}{1+(x',\beta)}$$

The odds ratio = $\frac{p_i}{1-p_i}$ = exp(x', β)

The log odds ratio = ln $(\frac{p_i}{1-p_i})$ = x', β

Therefore the Logit (p_i) = $\beta_0 + \beta_i x_i$

Theoretically, the logit and probit models prescribe that if the binary response of the dependent variable is 0 and 1, then by default, the logit (and probit) models the probability of 1 instead of 0; that is, $\log\left\{\frac{\Pr(W'=1|x)}{\Pr(W'=0|x)}\right\}$. This is consistent with the cumulative logit model intended to capture the variables under empirical examination in this study. Specifying the logit model this way is desirable because 1 is often used to denote the response of the event of interest (Greene, 2003).

Hypothesis

H_0: Students are likely not to perform academically by using social media.
H_1: Students are likely to be exposed to a number of positive benefits on social media.

RESULTS AND DISCUSSION

Table 1 presents information on how online networking has generally influenced the students' academic performance. While, the focus was on how much online interaction had improved students' academic performance, the results indicate that the students were mainly using social media to establish relationships and encourage other activities such as watching pornographic videos, gossiping with friends and building personal relations with their lecturers.

Table 1: *Factors affecting academic performance*

Variable	Observations	Mean	Std. Dev.	Min	Max
Building relationships	900	1.69	.9874124	1	4
Building intimate relationships with lecturers	900	2.89	1.208107	1	4
To improve on my grades through lecturer relationships	900	2.9	1.162541	1	4
To build sexual relations with my lecturers	900	3.86	.4479095	1	4
To gain more understanding	900	1.65	.9101761	1	4
Gossip with friends online during lectures	900	3.52	.8187459	1	4
Chat with friends during lectures	900	3.38	.8924601	1	4
Spellings have been very difficult for me	900	3.39	.8937491	1	4
Reading of books	900	1.98	1.068114	1	4
Watching of pornographic videos	900	3.73	.6144261	1	4
Looking out for new fashion trends	900	2.56	1.17811	1	4

Source: Field data, 2020

While the results indicate different reasons for use, we noted uses such as chatting with colleagues during lectures, with a mean of 3.39 which implies students were not focused on lectures in session, preferring participation in social discussion with colleagues. Perusing books online, building relations with colleagues and increasing understanding of a course recorded the lowest means. Viewing explicit recordings or videos returned the second highest mean. This is in congruence with the findings of Raut and Patil (2016) that social media influence has permeated society with serious addiction and brings with it negative actions. Accordingly, there is support for the null hypothesis, H_0 which states that students are likely not to perform academically by using social media. Factors, such as building sexual relations with lecturers, gossiping, and chatting during lectures, provide additional support for the null hypothesis. The effect of online networking on scholarly work is extremely low according to the outcomes from the responses. From the outcomes, factors that are academic related recorded exceptionally low mean values.

Logistic Regression

The logistic regression results are shown in Table 2. The statistics capture details of students' online practices, purpose of visit and duration of use.

Table 2: *Logistic regression of students' academic performance on social media*

Regresssors	Odd Ratio	Std. Err.	z-stats	P>z	95% Confidence Interval	
Frequency of social media networking						
1-59 minutes	-.0331868	.018	-1.84	0.065	-.068467	.002093
1-2 hours	-.0605317	.01819	3.33	0.001	.024874	.09619
Online research						
Less than an hour	.0765141	.02723	-2.81	0.005	-.129883	-.023146
an hour	.1604788	.0124	-12.94	0.000	-.184783	-.136174
1-2 hours	.2505009	.02444	-10.25	0.000	-.298402	-.202599
Usage of the internet for academic purposes						
Often	.6135142	.05408	-11.34	0.000	-.71951	-.507519
Sometimes	.498632	1.31676	7.21	0.000	-12.0794	-6.91784
Never	-.3018843	.03215	9.39	0.000	.238866	.364902
Usage of school library						
Often	.0478864	.01743	2.75	0.006	.013723	.08205
Sometimes	.3150418	.02043	-15.42	0.000	-.355079	-.275004
Never	-.0816023	.02143	-3.81	0.000	-.123607	-.039598
Usage of social media platforms						
Often	-.2425233	.05184	4.68	0.000	.140921	.344126
Sometimes	-.0867748	.01309	-6.63	0.000	-.061121	-.112429
Never	-.0326037	.01385	2.35	0.019	.005455	.059752
Social media visits when given an assignment						
Often	.013527	.26283	-6.90	0.000	-2.32867	-1.29838
Sometimes	.0170645	.03828	-0.45	0.656	-.092092	.057963
Never	-.024319	1.57462	7.14	0.000	8.15699	14.3294

Source: Field data, 2020

Conventionally, the rule of thumb for reading statistical p and z-tables is 5%, which is equivalent to 0.05. As in the case of this study, when the p-value < 0.05 or the z-statistics is >= 1.96 then it means at least one of the explanatory variables is significant, and it is not significant if otherwise. Significant means that the variables can explain the dependent variable, that is, academic performance.

DISCUSSION

Frequency of social media networking

As per the data presented in Table 2, at least one of the parameters estimated is significant, with p<0.05. The marginal effect of both *Frequency of social media networking variables* is statistically significant. A minute more spent by tertiary students on social media networking shows an academic performance which is 3% lower for those who spent 1-59 minutes relative to those who spent more time. However, for those who spent 1-2 hours relative to those who spent more time, academic performance reduces by 3%. Even though one of the basic reasons for social media networking was for resource sharing, the study findings revealed that a minute spent on *social media networking* by these students reduces academic performance instead. These findings are theoretically consistent with the expectation given that *social media networking tends to reduce the amount of study time* which could invariably negatively affect academic performance of students. Truzoli *et* al., (2019) argued that students may lose concentration by using Social Media or while online, lending support to the findings of this study.

Online Research

Responses were also gathered from students who use the Internet for online research. From the data in Table 2, we note that students who spent '*less than an hour'* had their academic performance improved by just 7% relative to those who spent *more time* online. Students who spent an hour had their academic performance improved by 16 % relative to those who spent *more time* online. The last category of the response for students who spent *1-2 hours* had their academic performance improved by 25 % relative to those who spent *more time* in that category. In all these categories academic performance improved significantly, irrespective of the duration of time spent online doing research. *The reference category was more than 2 hours*. The z-statistic is greater than 1.96 and P<0.05. The results suggest that students' academic performance will improve no matter the period they spend online during research. This is, therefore, consistent with Asiedu (2017) whose study findings showed that the Internet is a significant tool for use in the school environment since it bolsters the sharing of assets and other important educational materials that could enhance the performance of the student.

Usage of the Internet for Academic Purposes

The study sought to find out how often respondents use the Internet mainly for *academic purposes.* The options they were to choose from were *often, sometimes, and never. The reference category was mostly.* The data in Table 2 showed that those who *often* used the Internet had their academic performance improved by 61%. Also, students who *sometimes* used the Internet for academic research had their academic performance improved by 50% relative to those who used the Internet more. For students who had *never* used the Internet before, academic performance worsened by 30 % relative to those who used it for academic purposes. Therefore, these results suggest that usage of the Internet may help improve academic performance. The results showed that there is a significant improvement in students' academic performance in all categories as demonstrated by the z-statistics (1.96 and P<0.05) and academic performance will improve relative to usage of the Internet for academic purposes. This finding supports the alternative hypothesis, H_1, which states

that students are likely to be exposed to a number of positive benefits on social media. Further, the findings suggest that use of the Internet can potentially improve students' academic performance. This finding rejects that of Keen (2007) and Carr (2010) that posits the ubiquitous nature of the Internet may have very dangerous implications, such as influencing one's reasoning capacity.

Usage of school library

The categories for usage of the school library were *often, sometimes and never.* The reference category was *every day.* From the data in Table 2, we note that for those who said *often*, academic performance improved by 4% relative to those who used the library *every day*. In a similar vein, for those who *sometimes* used the library, academic performance improved by 32% however for those who had *never* used the library before, academic performance worsened by 8% relative to those who used the library *every day*. The findings show that a little time spent at the library could increase students' academic performance. In summary, all categories were significant at $P<0.05$ and z-statistics >1.96 and for students who visit the library there could be improvement in academic performance. This is consistent with the findings of Gbemi-Ogunleye (2016) that the library could help enhance the scholastic advancement of students.

Usage of social media platforms

The categories for usage of social media platforms were *often, sometimes* and *never* as shown in Table 2. The reference category was *once*. The results show that, for those who visited social media *often*, academic performance worsened by 24 % and for those who sometimes visited social media, academic performance worsened by 8 percent relative to those who visited such platforms only once. The results as shown for those who had never used social media indicate their academic performance had worsened by 3 percent relative to those who had visited social media platforms only once. In all the categories (*often, sometimes and never*) the z-statistics suggest significance with $P<0.05$. The data suggests that whether a student uses social media or not, this is not a driver for boosting academic performance. Therefore, we posit that spending time on social media, no matter the duration, may worsen one's academic performance. This finding is consistent with that of Cann, *et al* (2011), that there may be a blur in the distinction between the working hours for students' who invest quite a bit of their energy on the web.

Visiting social media when given an assignment

Students who *often* visited social media particularly when given an assignment recorded 1% improvement in their academic performance relative to those who visited there just *once*. Moreover, those who visited the library *sometimes* also improved their academic performance by 2% relative to those who visited there only once. In the last category, which is *never*, academic performance worsened by 2 %. Even though social media may somewhat improve academic performance, it may also not be a good way for improving academic success. Therefore, the less the time spent on *social media,* the better a student's academic performance may become. Even though the findings are consistent with Boateng and Amankwa (2016) that social media enables students to complete their assignments, it contradicts that of Agwi & Ogwueleka (2018) and Owusu-Acheaw & Larson (2015) that spending time on social media does not yield much positive results.

Interpretation of results on social media and academic performance

It was discovered during the analysis that tertiary students are known to be generous users of technology. As shown in Table 1, the academic performance of students who adopted social media worsened. This is consistent with Kolan and Dzandza (2018), who noted that use of the Internet for academic work is not a guarantee for academic success but can have very dangerous implications for the learner. Social media not only supports information gathering or networking, it has also

affected the younger generations negatively. It was expected that adoption of social media would primarily impact positively on students' academic performance, but our results indicated otherwise. We noted that the null hypothesis, H_0 is true, that some students are likely not to perform academically. In accordance with the TAM model, the actual use of a system is directly influenced by the behavioural intentions and that depends on a person's attitude. Students may not have used social media for academics as suggested by the results but rather visit such platforms based on what colleague students may have discussed with them. The variables such as usage of the internet for academics, the frequency of networking, and using social media mainly for academics may have been determined by reasons which are all influenced by social or cultural and political factors. On the issue of the *usage and adoption of social media*, as presented in Table 2, academic performance worsened by 24% relative to those who had visited social media once. This clearly indicates that social media is not an absolute guarantee for academic excellence. For instance, the advent of web 2.0 supported platforms has created the impression that the Internet is the only place where students can have access to all of the most relevant information they need. This has not helped students to spend quality time online. From the findings it can be summarised that students are driven by interest and not by purpose.

As shown in Table 2, social media does not only provide opportunities for students to access academically related information, but also other content that are generally for public consumption. The researchers believe that it is not an avenue for critically promoting academic related materials, but a fertile ground also for promoting all forms of social vices, as shown by the information presented in Table 1. We contend that the low mean for searching content online, was obtained because these students either do not know how to search for books online or do not have an interest in such use.

Social media use mainly for academic improvement is undoubtedly false, since the features students mainly used on the platforms promoted personal activities and networking among peers. Effective use of social media platforms such as Twitter chats, Pinterest boards just to mention a few, for educational purposes must be encouraged for a viable integration to meet students' needs. One of the reasons that accounts for the low patronage of social media as educational platforms, is that social media has very attractive features and content that provide exciting moments for students and that rather makes them lose focus while online. The adoption of technology by students depends on its application and context and making good use of it defines the outcome of students in their academic development.

CONCLUSION AND RECOMMENDATION

ICT tools are redefining the scope of most of the methods used for delivery of educational content and the pedagogy used in the traditional learning environment. We noted in this study that patronage of social media has gained importance in the literature as an influence on the academic performance of students. In accordance with the null hypothesis H_0 in our study, students are likely not to perform well academically. Students mostly visit social media platforms and that distracts them from their academic work. It was also discovered during the analysis that, *frequently networking on social media* tends to reduce the amount of quality time to be spent for research online. Further, in regard to *online research,* academic performance could be improved independent of the duration of online research or usage. Analysis of the question that sought to investigate *who uses the internet for academics*, the results showed that students who had never used the Internet had worsened academic performance and students who spend more time online often had improved academic performance. Similarly, academic performance worsened for those who had never visited the library.

Generally, for students who always visit social media platforms for their personal activities and not particularly for academic purposes, their academic performance worsened or showed the potential to worsen. Finally, we conclude that, although the adoption of social media has a negative impact on students' academic performance, the adoption of ICT can positively benefit students' academic performance. It is recommended that an online educational program driven strategy be adopted, which explicitly controls students' lead at whatever point they go online to do scholarly research.

FUTURE RESEARCH

It is suggested that future research considers how teachers can use social media to effectively mediate online learning.

REFERENCES

Acut, D., Caparoso, J.K., Carpo, M.J.C. & Magsayo, J.R. 2016. Relationship of students' Internet usage and academic performance. *Conference: The 4th International Conference for Science Educators and Teachers, At KhonKaen, Thailand*. Retrieved on 4th December, 2019 from https://www.researchgate.net/publication/315879836_Relationship_of_Students'_Internet_Usage_and_Academic_Performance.

Agwi, U.C., & Ogwueleka. F.N. 2018. Impact of social media on students' academic performance. *International Journal of Scientific & Engineering Research,* vol, 9, no. 3, March-2018. 1454 ISSN 2229-5518. Retrieved 13th March, 2019 from http://www.ijser.org

Asiedu, N. K. 2017."Influence of social networking sites on students' academic and social lives: The Ghanaian Perspective." *Library Philosophy and Practice (e-journal).* 1535. Online: http://digitalcommons.unl.edu/libphilprac/1535.

Au, M., Lam, J. & Chan, R. 2015. Social Media Education: Barriers and Critical Issues. In: Li K.C.,Wong, T.L,, Cheng, S.K.S., Lam, J., Ng,K.K. (eds) Technology in Education. Transforming Educational Practices with Technology. *Communications in Computer and Information Science*, Vol 494. Springer, Berlin, Heidelberg. Print ISBN 978-3-662-46157-0. Online ISBN 978-3-662-46158-7

Bal, E. & Bicen, H. 2017. The purpose of students' social media use and determining their perspectives on education. In *Procedia Computer Science,* vol. 120, pp. 177–181. Elsevier B.V. Retrieved 10th August, 2019 from https://www.sciencedirect.com/science/article/pii/S1877050917324389

Basri, W.S., Alandejani, J.A. & Almadani, F. 2018. ICT adoption on students' academic performance: Evidence from Saudi Universities. *Education Research International 2018(1).* Retrieved 16th February, 2020 from https://www.researchgate.net/publication/324652392_ICT_Adoption_Impact_on_Students'_Academic_Performance_Evidence_from_Saudi_Universities.

Bhamare, C.R. 2020. Effects of social media on communication skills. RJSPM-ACS College, Pune. Retrieved 19th January, 2020 from https://theknowledgereview.com/effects-social-media-communication-skills/

Boateng, R.O. & Amankwaa, A. 2016. The impact of social media on student academic life in higher Education. *Global Journal of Human-Social Science: G Linguistics & Education*, vol. 16, no. 4, https://globaljournals.org/GJHSS_Volume16/1-The-Impact-of-Social.pdf

Cann, A., Dimitriou, K., & Hooley, T. 2011. *Social Media: A guide for researchers*. London: Research Information Network. http://hdl.handle.net/10545/196715

Carr, N. 2010. "*The Shallows: What the internet is doing to our brains".* New York: W.W. Norton & Co. ISBN 978-0-393-07222-8

Davis, F. A.1989. Perceived usefulness perceived ease of use and user acceptance of information technology, *MIS Quarterly,* vol. 13(3), pp. 319-340. doi:10.2307/249008

De Witte, K., & Rogge, N. (2014). Does ICT matter for effectiveness and efficiency in mathematics education?. *Computers & Education*. 75. 10.1016/j.compedu.2014.02.012.

Garg, A. 2014. How can we determine the sample size from an unknown population? Retrieved on 23rd January, 2019 from https://www.researchgate.net/post/How_can_we_determine_the_sample_size_from_an_unknown_population

Gbemi-Ogunleye, P. 2016. "Library use and students' academic achievement: Implication for Counseling Librarian". University of Lagos, Nigeria. *Information and Knowledge Management* vol.6, no.2. www.iiste.org. Retrieved on 14th March, 2020 from: https://pdfs.semanticscholar.org/735c/3c19110bca9ec635c65ae443cdb7870bd219.pdf

Greene, W.H. 2003. *Econometric Analysis*. 5th Edition, New Jersey: Prentice Hall. Retrieved 15th September, 2019. https://spu.fem.uniag.sk/cvicenia/ksov/obtulovic/Mana%C5%BE.%20%C5%A1tatistika%20a%20ekonometria/EconometricsGREENE.pdf

Gujarati, D.N. 2004. *Basic Econometrics*. 4th Edition, McGraw-Hill Companies.

Henderson, A. & Bowley, R. 2010. "Authentic dialogue? The role of 'friendship' in a social media recruitment campaign", *Journal of Communication Management*, vol. 14, no. 3, pp. 237-257.

Johnson, M.P. 2011. Using the Internet to improve student learning and achievement. Northern Michigan University.

Keen, A. 2007. The cult of the amateur: how the democratization of the digital world is assaulting our economy, our culture, and our values. Doubleday Currency, ISBN 978-0385520805

Kellenberger, D.W., & Hendricks, S. 2000. "Predicting teachers' computer use for own needs, teaching and student learning". *Journal of Educational Computing Research*, vol. 16, no. 1, pp. 53-64

Kirschner, P.A & Karpinski, A. C. 2010. Facebook® and academic performance. *Computers in Human Behavior,* vol. 26, no. 6, pp. 1237-1245. November 2010. Online: https://doi.org/10.1016/j.chb.2010.03.024. Retrieved on 12th April 2020.

Kolan, B.J. & Dzandza, P. E. 2018. Effect of social media on academic performance of Students in Ghanaian Universities: A Case Study of University of Ghana, Legon. University of Nebraska – Lincoln. *Lincoln Library Philosophy and Practice (e-journal)* Retrieved 14th February, 2019 from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=4687&context=libphilprac on

Lad, H. 2017. The Positive and Negative Impact of Social Media on "Education, Teenagers, Business and Society". *International Journal of Innovative Research in Science, Engineering and Technology*. vol. 6, no. 10. DOI:10.15680/IJIRSET.2017.0610072

Ministry of Education, Ghana. 2015. ICT in Education Policy. Republic of Ghana.

Owusu-Acheaw, M., & Larson, A.G. 2015.Use of social media and its impact on academic performance of tertiary institution students: A study of students of Koforidua Polytechnic, Ghana. *Journal of Education and Practice*. vol.6, no.6, www.iiste.org

Paul, J., Baker, V., Cochran, J. (2012). Effect of Online Social Networking on Student Academic Performance. *Computers in Human Behavior,* vol. 28, no. 6, pp. 2117-2127.

Pimenta, F.B., Pinho, L., Silveira, M.F. & Botelho, A.C. 2015. Factors associated with chronic diseases among the elderly receiving treatment under the Family Health Strategy. *CienSaude Colet*. 2015; vol. 20, pp. 2489-2498.

Raut, V and Patil, P. 2016. Use of Social Media in Education: Positive and Negative impact on the students. *International Journal on Recent and Innovation Trends in Computing and Communication*. vol. 4, no. 1, pp. 281 – 285. https://ijritcc.org/download/conferences/ICRRTET_2016/ICRRTET_Track/1455261816_12-02-2016.pdf

Suresh, K., Thomas, S.V. & Suresh, G. 2011. Design, data analysis and sampling techniques for clinical research. *Ann Indian Acad Neurol,* vol. 14, pp.287-290.

Truzoli, R, Viganò, C, Galmozzi, P.G., Reed, P (2019). Problematic internet use and study motivation in higher education
First published: *Journal of Computer Assisted Learning,* vol. 36, no. 4, 12 December 2019 https://doi.org/10.1111/jcal.12414

UNESCO. 2014. Social media for learning by means of ICT. *UNESCO Institute for Information Technologies in Education.* Policy Brief. Online https://unesdoc.unesco.org/ark:/48223/pf0000215292 on

Venturini, T. 2019. From fake to junk news, the data politics of online virality. In D.Bigo, E.Isin, & E. Ruppert (Eds.), Data politics: Worlds, subjects, Rights. London: Routledge (forthcoming)