ACCESSIBILITY TO ICT AND USE OF TWITTER AS DETERMINANT OF ACADEMIC PERFORMANCE OF STUDENTS

BY

DR LUKE P. HENRY
FACULTY OF EDUCATION
UNIVERSITY OF CALIFORNIA
OAKLAND, CALIFORNIA
UNITED STATES

ABSTRACT

This study examined how the accessibility to ICT and the use of twitter affects the academic performance of student. Two specific research objectives were formulated to guide the study. The research design was survey study design. The population of the study consisted of all senior secondary schools students using a stratified sampling technique. The instrument known as "Twitter and Academic Performance Inventory (TAPI)" was used to collect the data. The instrument was subjected to reliability test, using test-retest method and it produced high average reliability coefficient to justify the use of the instrument. The analysis was done using appropriate statistical techniques such as descriptive statistics t-test analysis and two-way analysis of variance. The findings revealed that students are so much indulged in the use of twitter as one of the social networks and there is significant influence of school location and use of twitter on the academic performance of students. One of the recommendations was that students should know that overuse of social network including twitter is detrimental to their studies and so should avoid it.

Key words: *Accessibility to ICT, Twitter, academic performance, Economics, students*

INTRODUCTION

The internet is a global system of interconnected computers that uses the standard internet protocol suite **(TCPT/IP)** to serve billions of users worldwide. With the development of internet services, various resources, including social network, that make life easy have emerged. The impact of social networking websites have been greatly felt and has expanded rapidly over the last few years and this make many people see the need of being members of social network. The social network site as a standardized social setting incorporates individuals and/or organizations which can be both profitable and non-profitable. Social media comprises of activities that involve socializing and networking online through words, pictures and videos. Twitter, face book, iigo, whatsapp, baddo, Bbn, E-buddi,U-tube, sky, Imo, etc. are examples of social network and their operations are made possible by internets facilities. That is why Wikipedia (iioii), states that the internet carries a vast range of information resources and services to support traditional communication media including telephone, cinema and redefined by the internet, giving birth to new services such as voice over internet protocol **(VOIP)**. Among the services provided by internet, social network is becoming very popular and get clinked to by many, ranging from youths to adults and from applicants to working class.

According to Reuben (iioiv), social networking websites have expanded rapidly over the last few years and have created new and varied channels of communication via internet, whether through personal computer or mobile phones. Many people are now members of social networking websites. Kaplan and Haenlein (iioio) defined social media as a group of internet-based applications that build on the ideological and technological foundations of Webii.o, and that allows the creation and exchange of user-generated content. It depends on mobile and web-based technologies to create

highly interactive platforms through which individuals and communities share, co-create, discuss and modify user-generated content.

Twitter is one of the fastest growing social networks in terms of users in the world. According to shields and Maggie (IIOII), Twitter is an online social networking service that enables its users to send and read text- based posts of up to IVO characters known as "tweets". Twitter was created in IIOOL by Jack Dorsey and launched in July of that year (Twitter search team, IIOII). Also, the Wikipedia (IIOII) narrates that twitter rapidly gained worldwide popularity, with IIOOmillion users as IIOII, generating over IIOOmillion tweets and handling over I.Lbillion search quarries per day. In many ways this social network site (twitter) continually provides social network for people at all ages. Twitter as a social network plays a role in communication throughout the world in the sense providing online services to share information with others and connect with them by creating a profile that may include a personal web page and a blog. It has been argued by Rosen (IIOIO) that twitter affects students behavior and performance by causing psychological disorder via addiction to the access of the social network. Also twitter affects behavior because the network is open to all. This study is therefore interested in finding out how Accessibility to ICT and the use of twitter affects the academic performance of economic students in some secondary schools.

Statement of the Problem

Advancement in technology in this era has reshaped all human activities on earth to include communication. The world has become a global village, where the use of computer and internet facilities is indispensible. Social media is among the numerous means which the people interact and communicate on line as more recently millions of people are on twitter, which is one of the social media to exchange views, ideas and other related matters which a good number of them being young ones. Twitter, as a social network, is not teen's friendly but is rather a matured social networking as it is more advanced in terms of language structure and it works differently from other social network on the basis that instead of indicating a mutual relationship, it focuses on only one-way action in receiving informing in the form of tweets from someone with such social service provided by twitter. It is a common sight to see youth twitting in sensitive and highly organized places like church, mosque and even class rooms, some are so carried away that even as they are walking along the highway, they are twitting. Therefore this research work seeks to explore the accessibility of ICT and use of twitter and how it affects the academic performance of economic students.

Objectives of the Study

The main objective of this study is to examine the influence of accessibility to **ICT** and use of twitter on the academic performance of students. The specific objectives of the study are as follows:

i. To find out the influence of use of twitter on the academic performance of students.

ii. To determine the influence of accessibility to **ICT** and use of twitter on the academic performance of students.

Research Questions

The following research questions will be answered:

i. What is the influence of use of twitter on the academic performance of students?

ii. What is the influence of accessibility to **ICT** and use of twitter on the academic performance of students?

Hypotheses

The following hypotheses will be tested:

i. There is no significant influence of use of twitter on the academic performance of students.

ii. There is no significant influence of accessibility to **ICT** and use of twitter on the academic performance of students.

LITERATURE REVIEW

Twitter Social Networking Sites and Academic Performance of Secondary School Students

According to Metropolitan school of business and management (2011), it has been proven that students who are actively engaged in social media networking sites like twitter perform more poorly than other students who are not. It is easier to get distracted by the various social media networking sites. Students are more likely to be faced with the temptation of surfing the web, chatting with friends and visiting the various social and media websites rather than focus on getting their school work done in time. For a secondary school student, the negative effects of social media networking sites on academic performance include:

i. **Decrease in productivity:** David (2014) asserts that social media networking sites decrease productivity as so many students end up spending the better part of their study hours checking those sites. Rather than get their assignments done, they spend the whole time either tweeting or posting messages on face book. There is bound to be a reduction in students focus of attention when they are studying and at the same time trying to get involved in activities on these social sites. This often time causes a drastic reduction in their academic performance.

ii. **Encourages Poor Grammar usage:** Not only does the active involvement in the social sites encourage the poor use of grammar but also spellings, as students mostly use slang or shortened forms of words. Using twitter as an example, twitter limits its users to the use of 140 characters. Therefore users will have no other option than to abbreviate their words as much as they can, just to enable their thoughts fit into the 140 character provision. "There is, after all, only so much information that can be obtained in 140 characters. While the option to dig deeper may be present through embedded links in Tweets, for example, there may be little reward in pursuing those connections for students." As a result of the excessive use of abbreviated words and slang by students on social networks, they start to rely on the computer grammar and spell checkers on their devices. This results in the reduction of their command over English language and also their writing skills (David, 2014).

III. Reduction in research capabilities: Learning and research capabilities have experienced drastic low reduction as a result of students relying more on the information accessible easily on these social networking sites and web in general.

Social Networking Sites and its Users

The term social networking sites (SIOS) generally refer to internet-based locations that individual and group to interact. Social networking sites (SNS) specifically refers to those internet based services that promote online social interaction between two or more persons within a bounded system for the purpose of friendship, meeting people and or exchanging information. It lets users create public or semi public personal profile pages that contain information of their own choice. It's serves as a mechanism to communicate with other users, and contains mechanism that allows users to search for other users according to some specific criteria (Zwart et al, IIOII; Boyd and Ellison IIOOC). Sites such as twitters, face book, my space are good examples of SNS that meet the previously stated criteria. The use of social networking sites have grown significantly since IIOOO with estimates of nearly CD% of adult using the internet regularly, teenagers at ID years and above at LX% using social networking sites (Pew, IIOOM).

In terms of membership and daily usage, more recent estimates shows face book as having over CXO million users worldwide, Linked-in over IOO million members, twitter having over ICC million tweet per day and you tube having III million views and are used between the ages of ID to IIM (Rainie, IIOII). Approximately, LI% of teens of the ages of III-IC utilize social network sites to send messages to their friends on regular basis (Lenhart, IIOOM). Overall, it has been found that more women than men use social networking sites to communicate and exchange information (Hampton, IIOII).

METHOD

Research Design

The design of this research is a survey study. The design is necessary because it focuses on the examination of the extent and the influence of twitter on academic performance of student. This design is relevant to the study because it will enable the researcher collect data from the large and small number of respondents on the specified variables. The area of study is California. The population of this study consisted of all senior secondary schools students in secondary schools. The sample for this study consisted of IIDL respondents. They were obtained through stratified random sampling technique, where a certain number of respondents was selected from the selected schools and based on the population of the economics students in those schools. Two instruments were used for data collection. One of the instruments used in this study was a research questionnaire tagged "**TWITTER AND ACADEMIC PERFORMANCE INVENTORY (TAPI).**" The questionnaire was made up of two sections such as sections I and II. The instrument was subjected to face validation by the supervisor and one expert from the department of Test and Measurement. They were expected to test for the validity of the instrument by way of proper measurement of all the variables in the instrument. Their inputs were used to modify and streamline the instrument. The reliability study was conducted with the use of thirty (IIIO) respondents from secondary schools that was not a part of the main work. Cronbach's Alpha technique was used to determine the reliability coefficient of the instrument in other to find out whether it is reliable or not. The data was analyzed using appropriate statistical techniques. For research question descriptive statistics was used to answer it while independent t-test analysis and two-way analysis of variance were used to test the hypothesis at o.ox alpha level.

RESULTS
Research Question One

What is the influence of use of twitter on the academic performance of students?
To answer the research question, descriptive analysis was performed on the data (see table ɪ)

Table 1

Descriptive statistics of the influence of use of twitter on the academic performance of students.

Use of twitter	N	$\overline{X}$
Less use	ɪxC	CO. ɪɪɪC**
Much use	ɪɪɪM	xC. xO *
Total	ɪɪDL	LV. XL

**Highest mean score
*Least mean score
SOURCE: FIELD SURVEY

The above table ɪ presents the descriptive statistics of the influence of use of twitter on the academic performance of students. **F**rom the table, it was observed that the students with the less use of twitter were more in number (ɪxC) with higher mean value of co.ɪɪɪC in academic performance than those (ɪɪɪM) with much use of twitter with mean value of xC.xO in academic performance. **T**he result therefore means that there is significant influence of use of twitter on the academic performance of students, meaning that students who did not devote much time for twitter performed better than their colleagues who devoted much time for twitter performed.

Research Question Two
What is the influence of accessibility to **ICT** and use of twitter on the academic performance of students?
To answer the research question, descriptive analysis was performed on the data (see table ɪɪ) **Table 2**

Descriptive statistics of the influence of accessibility to ICT and use of twitter on the academic performance of students.

Accessibiliy of ICT (factor 1)	Adequate			Inadequate			Total		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
	ɪDL	LM. LD	ɪɪɪ. ɪɪɪɪ	ɪOO	XX. OX	L. OX	ɪɪDL LV. XL	D. ɪɪL	

Use of twitter (factor 2)	Less Use			Much use			Total		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
	ɪxC	CO. ɪɪɪC	ɪɪ. Mɪ	ɪɪɪM	xC. xO	C. OC	ɪɪDL LV. XL	D. ɪɪL	

**Highest mean score
*Least mean score
SOURCE: FIELD SURVEY

The above table ɪɪ presents the descriptive statistics of the influence of accessibility to **ICT** and use of twitter on the academic performance of students. **F**rom the table, it was observed that for factor ɪ (accessibility of **ICT**) students with adequate access to **ICT** were more in number (ɪDL) with mean value of LM.LD in academic performance than those (ɪOO) with ineffective use of twitter with mean value of xx.ox in academic performance. **F**or factor ɪɪ (use of twitter), students that use it effectively were more in number (ɪxC) with mean value of co.ɪɪɪC in academic performance than those (ɪɪɪM) with ineffective use of twitter with mean value of xC.xo in academic performance. **T**he result therefore means that there is significant influence of school location and use of twitter on the

academic performance of students.

Hypothesis one

The null hypothesis states that there is no significant influence of the use of twitter on the academic performance of students. In order to test the hypothesis, two sets of variable were identified as follows:-

I.   Use of twitter as the independent variable

II.   Academic performance as the dependent variable

        Independent t-test analysis was used to analyze the data in order to determine the influence of use of twitter on the academic performance of students. (See table III).

TABLE 3
Independent t-test analysis of the influence of use of twitter on the academic performance of students.

Variable	N	$\overline{X}$	SD	t
Less Use	IXC	CO. IIIC	II. MI	
				IIO. CD*
Much Use	IIIM	XC. XO	C. OC	

*Significant at 0.05 level; df = 284; N= 286; critical t-value 1.96

Table III presents the obtained t-test-value as IIO.CD. This value was tested for significance by comparing it with the critical t-value (I.ML) at 0.0x level with IIDV degree of freedom. The obtained t-value (IIO.CD) was greater than the critical t-value (I.ML). Hence, the result was significant. The result means that there is significant influence of use of twitter on the academic performance of students.

Hypothesis Two

The null hypothesis states that there is no significant influence of accessibility to ICT and use of twitter on the academic performance of students. In order to test the hypothesis, two sets of variables were identified as follows:-

    I.   Accessibility to ICT and use of twitter as independent variables

    II. Academic performance as dependent variables.

Two-way analysis of variance was then used to analyze the data. (See table v).

Table 4
Two-Way Analysis of variance of the influence of accessibility of ICT and use of twitter on the academic performance of students.

FACTORS

Factor one (accessibility to ICT)

Adequate			Inadequate			Total		
N	X	SD	N	X	SD	N	X	SD
IDL	LM. LD	III. IIII	IOO	XX. OX	L. OX	IIDL	LV. XL	D. IIL

Factor Two (use of twitter)

Less use			Much use			Total		
N	X	SD	N	X	SD	N	X	SD
IXC	CO. IIIC	II. MI	IIIM	XC. X0	C. OC	IIDL	LV. XL	D. IIL

Source of variance	SS	Df	Ms	F
Main effects	IXDCII. CM^a	III	XIIM0. MIII	VIL. III
accessibility to **ICT**	IIIIIMV. XL	I	IIIIIMV. XL	IIXM. II
use of twitter	VLM0. LD	I	VLM0. LD	IIILD. MI
Accessibility to **ICT** x use of twitter	XVL. CX	I	XVL. CX	VIII. 00*
Within group(**E**rror)	IIIXDX. XD	IIDII	III. CII	
Total	IMVXD. IIIC	IIDX		

**Significant at 0.05 level; df =3 & 282, critical F-value = 2.60

Table v shows that the calculated F-value of (viii.oo) was obtained after testing for significance at o.ox alpha level with iii + iidii degrees of freedom. The calculated F-value (viii.oo) was greater than the table F-value (ii.lo). Hence, the result was significant. The result therefore means that there is significant influence of accessibility to **ICT** and use of twitter on the academic performance of students.

DISCUSSION OF THE FINDINGS

The result of the data analysis in table i and iii were significant due to the fact that the obtained t-value (iio.cd) was greater than the critical t-value (i.ml) at o.ox level with iidv degree of freedom. The result implies that there is significant influence of use of twitter on the academic performance of students. The result therefore was in agreement with the newstodayneo.com (iioom) that stated that students who spend much of their time in internet usage find it difficult to concentrate in the classroom and not notice what is taught. The website explains that teachers are disappointed to see the students using "**C**hat language" which is commonly used in social networking sites such as twitter during **E**nglish grammar lessons. The website further says, that social networking sites like twitter unconsciously shaped the attitude, behaviours and also academic performance of students. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

The result of the data analysis in table ii and v were significant due to the fact that the calculated F-value (viii.oo) was greater than the table F-value (ii.lo) at o.ox level with iii + iidii degree of freedom. The result implies that there is significant

influence of accessibility to **ICT** and use of twitter on the academic performance of students. The result therefore is in agreement with the research findings of many experts in the field of study. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

Conclusions

Based on the findings of the research work, it was concluded Students in California are so much indulged in the use of twitter as one of the social networks and there is significant influence of school location and use of twitter on the academic performance of students.

Recommendation

The following recommendations are deemed necessary:
I.   Student should know that overuse of social **N**etwork including twitter is detrimental to their studies and so should avoid it.
II. School authorities should discourage students from excess use of any of the social networks. **B**y so doing our will improve their academic performance not only in economics but also in other subjects.

REFERENCES

Aniefiok, M. S. (IIOIV) Connecting to the Net Generation: *What Higher Education Professionals Need to Know about today's Students.*

Boyd, G. M. + Ellison, R. N. (IIOOC) Engaging online learners: the impact of web-based learning technonlogy on college student engagement. *Computers & Education* xv, IIIIIIII— IIIIIIII. Forthcoming.

David, M. (IIOIV) Connections between the lines: augmenting social networks with text. In KDD 'OM: *Proceedings of the 15th ACM SIGKDD international conference on Knowledge discovery and data mining.*

Hampton, R. E. + Janet, S. (IIOII) Topic-link lda: joint models of topic and author community. In ICML 'OM: *Proceedings of the 26th Annual International Conference on Machine Learning*

Kaplan, B. + Haenlein, N. (IIOIO) Student involvement: a developmental theory for higher education. *Journal of College Student Personnel 25,* IIMC— IIIOD. III R. Junco et al. © IIOIO Blackwell Publishing Ltd

Lenhart, D. M. (IIOOM) Labeled lda: *a supervised topic model for credit attribution*

Metropolitan school of business + management, (IIOIII) finding topic-sensitive influential twitterers. In WSDM 'IO: *Joint latent topic models for text and citations.* In KDD 'OD: Proceedings of the IVth ACM SIGKDD International.

News todayneo.com (IIOOM) *Higher education in a Web 2.0 world. JISC Report.* Available at: http://www.jisc.ac.uk/media/ documents/publications/hewebIIOrptVI.pdf.

Pew, N. W. (IIOOM) Learning to classify short and sparse text + web with hidden topics from large-scale data collections. In WWW 'OD: *Proceedings of the 17th International Conference on World Wide Web.*

Rainie, B. (IIOII) Efficient methods for topic model inference on streaming document collections. In KDD 'OM: Proceedings of the IXth ACM SIGKDD. *International Conference on Knowledge Discovery and Data Mining.*

Reuben, D. (IIOIV) Mountains beyond Mountains: The Quest of Dr. Paul Farmer, A Man Who Would Cure the World. Random House, *New York,* NY.

Rosen, J. (IIOIO) *The National Survey of Student Engagement: Conceptual Framework and Overview of Psychometric Properties.* Center for Postsecondary Research, Indiana University, Bloomington. Available at: http://nsse.iub.edu/ pdf/psychometric_ framework_IIOII.

Shields, T. + Maggie, M. S. (IIOII) Internet use among College Student : Tool or Toy? *Educational Review. 62(1)* pp. :DX—ML.

Twitter Search Team (IIOII) Botivist: Calling volunteers to action using online bots. In Proceedings of the IMth ACM *Conference on Computer-Supported Cooperative Work & Social Computing ,* DIIII— DIIII. ACM.

Wikipedia, N. T. (IIOII) Unmasking the effects of student engagement on first-year college grades and persistence. *Journal of Higher Education* CM, XVO— XLIII.

Zwart, D. + San, M. (IIOII) What student affairs professionals need to know about student engagement. *Journal of College Student Development* XO, LDIII— COL

Twitter search team, (IIOII) Botivist: Calling volunteers to action using online bots. In Proceedings of the IM^th ACM *Conference on Computer-Supported Cooperative Work & Social Computing* , DIIII— DIIII. ACM.