Social Network Services Use, Academic Self-Efficacy and Students' Academic Performance in Nigerian Tertiary Institutions

D. A. Adeniyi, Z. WEI, Y. YANG

Department of Computer Sc. & Technology, College of Information Sc. & Engineering, Ocean University of China, Qingdao, Shandong, China.
i@yangyongquan.com

Keywords: Post Secondary Education, Human-Computer Interface, Country Specific Development, Gender Study.

Abstract. Currently there is an increase in the use of the internet; especially social network services applications, among students of tertiary institutions in Nigeria. This is as a result of easy access to computers and the internet on campuses. This of course, facilitates easy communication and dissemination of information among the students. But on the other hand, it has brought new risks and negative impact specifically as it relates to its addiction among students and its negative impacts on their academic performance. This study aimed at investigating whether academic self-efficacy and the use of Social Network Services (SNS) applications on the internet can affect student’s academic performance, through the use of Grade Point Average (GPA) system. A total number of 397 students from various higher institutions in Nigeria were made to complete a questionnaire package that includes, the Social Network service use scale, academic self-efficacy scale, academic performance scale and a demographic profile of participant form, which were all used as scaling instruments. The data collected were analyzed with the help of Pearson’s correlation co-efficient, Chi-square test of independency, ANOVA and MANOVA. The result shows a significant negative correlation and interaction effect between student’s social network services use and their academic performances. Likewise, Academic self-efficacy was discovered to be a significant factor in determine student’s academic performance. However, the level of academic performance did not differ in term of sex or ownership of computer or smart phone. The findings of the study are discussed in the light of related literatures and recommendations are made for further studies.

Introduction

Information and Communication Technology (ICT) is fast becoming a basic feature of global civilization. The use of the internet facility has changed the way people work, spend their leisure time and communicate with one another. Nowadays, people use computers or smart phones to search for information, play games, send and receive mails, and interact with one another on the internet. On-line Social Network Services (SNS) applications such as facebook, Twitter, You-tube, Whatsapp, QQ international etc. are now being used by many people, especially students of higher institutions for fast and easy access to people, for the purpose of on-line chatting, watch and share video and pictures, send voice and text messages, E-mails, video conferences, news blogs, etc. Facebook which happens to be the most popular SNS application currently has about 955 millions active users [1] and its use has continued to increase daily, especially among the youth. So also, it is for other SNS applications.

Despite the enormous advantages of these tools, researchers’ world over have been conscious of its negative impact due to its unhealthy or improper use [2]. SNS addiction is a form of technological addiction in which the addict spends excessive amount of time on the SNS, such a person usually has difficulty in managing time spent on SNS believing that the world outside the SNS is boring and easily gets irritated or frustrated if disturbed while on SNS, which in turn reduces social interaction with real people [1]. The problematic, unhealthy or improper use of SNS by students’ of institutions of higher learning may have negative effect; on their health, social life,
emotion and behavior, which in turn may affect their academic performance through procrastination of academic activities. Self-efficacy is described as individual’s confidence in his or her ability to perform the behavior required in order to produce a specific outcome at a given time [3,4]. Academic self-efficacy is the confidence a student’s exhibits on his or her ability to successfully complete an academic task [5]. For students to achieve high academic success there is a need to use the internet and SNS applications in a healthy way. This is necessary in order not to have difficulties in achieving good academic success as well as not to impair their belief in their academic self-efficacy through increase in academic procrastination.

This study seeks to examine the relationship between unhealthy use of the SNS, student’s academic self-efficacy and their academic performance, by administering questionnaire to a number of respondents from the Nigerian tertiary institutions, such as Universities, Polytechnics, Colleges of Education, Monotechnics, etc. The data collected will be analyzed using Pearson’s correlation co-efficient, Chi-square test of independency, ANOVA and MANOVA. The result will be presented with the use of SPSS software version 17 [6]. The findings of this study will make a significant contribution to the detection of therapeutical measures directed towards solving academic challenges of students in the Nigerian tertiary institutions as it relates to SNS abuse.

Methodology

This section deals with methods adopted in gathering and analyzing information for the study and these are discussed as follows:

Study Group

The study group consists of 397 students from various higher institutions in Nigeria, such as Universities, Polytechnics, Colleges of Education and Monotechnics. Of these numbers, 143, that is 36% were females and 254, 64%, males, ages ranges between 16 and 39 years. A total of 43.1% are in 100 level, 46.6% in 200 level, 4.5% in 300 Level, 3.0% in 400 level and 2.8% in 500 level.

Research Questions

Available literature and unpublished questionnaire data presented in this paper shows reason to suspect that, student’s SNS use, academic self-efficacy and academic performance may be related. Therefore, the two main research questions (RQs) were: 1. What is the relationship between student’s sex, ownership of computer/smartphone, internet access, SNS use and academic performance (Student’s GPA)? 2. What is the relationship between student’s academic self-efficacy, passion for course of study and academic performance (Student’s GPA)? Answers to the aforementioned questions will go a long way to proffer solution to the problem under study.

The Research Instrument

The researchers used the questionnaire method of data collection. A fixed response questionnaire consisting of 17 items and 5 sections was adopted. This consists of levels of access to ICT equipment (IAS) scale, Social Network Service use (SNS) scale, academic self-efficacy (ASS) scale, academic performance (APS) scale and demographic profile of participant (DP) scale. To maximize the reliability of the instrument used for this research, the questionnaires were pilot tested using the split-half method. The data obtained was analyzed using the Chronbach’s Alpha method to determine the reliability of the scales.

Data Analysis

The questionnaires were administered to students in various higher institutions in Nigeria both in The Universities, Polytechnics, Colleges of Education and Monotechnics at random, from North to South. Students were properly instructed about the aim of the research and how questions in the scale should be answered. The relationship between student use of SNS applications, academic self-efficacy and academic performance were investigated. Investigation was also carried out on whether the use of SNS applications especially spending longer time on SNS applications daily,
affects students academic performance through the students GPA. It was also investigated whether student self-efficacy can determine student’s academic performance.

In order to extract from the data a meaningful result and conclusion regarding our study, the following statistical tests were carried out: Pearson’s correlation co-efficient, the Chi-square Test of Independency, ANOVA and MANOVA using SPSS 17.0. The hypothesis statement which served as basis for decision taken is as follows:

\( H_0: \) Factor 1 is independent of Factor 2, \( H_1: \) Factor 1 is dependent of Factor 2

Decision Rule: Reject \( H_0 \) if sig value is \(< (0.05)\), otherwise do not reject \( H_0 \).

Presentation of Results

Table 1 demonstrates the correlation between internet, SNS Usage, ICT access, time spent on SNS applications daily and their (GPA). There was a significant negative correlation between the number of hours spent on SNS applications daily and student’s academic performance (GPA). The SNS hours and student’s GPA have a correlation co-efficient of \( r = -0.840 \) as shown in Table 1 and Figure 1.

Furthermore, the Chi square distribution test demonstrated that the variables have a Chi square test value \( (\chi^2) \) of 154.171, df value of 18 and Asymp.sig (2-sided) value of 0.00 as shown in Table 2.

Table 1. Pearson’s Correlation between Variables for student’s ICT access, Usage of SNS and their (GPA). (N= 397).

<table>
<thead>
<tr>
<th>Variable</th>
<th>1. ICT usage</th>
<th>1. Access to internet</th>
<th>2. SNS usage</th>
<th>3. SNS hours</th>
<th>5. GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ICT use</td>
<td>1</td>
<td>0.039</td>
<td>0.063</td>
<td>0.019</td>
<td>-0.009</td>
</tr>
<tr>
<td>2. Access to Internet</td>
<td>0.039</td>
<td>1</td>
<td>-0.021</td>
<td>0.711*</td>
<td>-0.370**</td>
</tr>
<tr>
<td>3. SNS use</td>
<td>0.019</td>
<td>-0.021</td>
<td>1</td>
<td>-0.060</td>
<td>0.036</td>
</tr>
<tr>
<td>4. SNS hours</td>
<td>0.019</td>
<td>0.711</td>
<td>-0.060</td>
<td>1</td>
<td>-0.840</td>
</tr>
<tr>
<td>5. GPA</td>
<td>-0.009</td>
<td>-0.370*</td>
<td>0.036</td>
<td>-0.840</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: ICT usage = Ownership of Laptop/Smart phone, SNS usage = Connection to social Network services. SNS Hour = Time spent on SNS daily (hours), GPA = Grade Point Average.

Table 2. Chi square Distribution Test between Variables for student’s ICT access, Usage of SNS and their (GPA).

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>154.171</td>
<td>18</td>
<td>.000</td>
<td>Reject ( H_0 )</td>
</tr>
</tbody>
</table>

Figure 2 demonstrate the correlation between variables for student’s academic self-efficacy and their GPA.

Most of the variables showed positive correlations between academic self efficacy (i.e. Passion for course of study, believing he/she is doing well in your course of study, believing he/she can improve in his/her course of study) and student’s academic performance (GPA). The passion for course of study and student’s GPA have a correlation co-efficient of \( r = 0.790 \) Furthermore, the Chi
square distribution test demonstrated that the variables have Chi square test value ($\chi^2$) of 5.607, df value of 6 and Asymp.sig (2-sided) value of 0.469 as shown in Table 3.

Table 3. Chi square distribution test between variables for student’s academic self-efficacy and their (GPA).

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>5.607$^a$</td>
<td>6</td>
<td>0.469</td>
<td>Do not reject H$_0$</td>
</tr>
</tbody>
</table>

Figure 1. Bar chart showing relationship between student’s academic performance (GPA) and number of hours spent on SNS applications daily.

Figure 2. Bar chart showing student academic self efficacy (Passion for course of study) and student’s academic performance (GPA).

The study shows that the level of academic performance did not differ in term of sex. The Chi square distribution test demonstrated that the variables have Chi square test value ($\chi^2$) of 5.679, df value of 6 and Asymp.sig (2-sided) value of 0.460 as shown in Table 4.

Table 4. Chi square distribution test between variables for student’s sex and their GPA.

<table>
<thead>
<tr>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>5.679</td>
<td>6</td>
<td>0.460</td>
</tr>
</tbody>
</table>
At one way ANOVA, student’s GPA varied according to hours spent on SNS daily. F(3,393) = 42.130, sig .000. However, academic self efficacy based on passion for course of study was found to be positively related/associated with academic performance. F(1,395)= 5.999, sig 0.15.

At one way MANOVA, we adopted the Wilks' Lambda(\(\lambda\)) multivariate statistics result. The result shows that there was statistically significant interaction effect between hours spent on SNS daily on the combined dependent variables of student’s GPA and Failing/Re-written courses during the last two semesters (Academic performance), F(6,784)=20.114, P=.000, \(\lambda=.751\).

Likewise, the Wilks' Lambda(\(\lambda\)) multivariate statistics result shows that there is also statistically significant interaction effect between passion for course of study (Academic self efficacy) on the combined dependent variables, student’s GPA, Failing/Re-written courses during the last two semesters (Academic performance), f(2,394)=3.031, p=.049, \(\lambda=.985\).

At two ways MANOVA, we adopted the Wilks’ Lambda(\(\lambda\)) multivariate statistics result. The result showed that there was significant interaction effect between hours spent on SNS daily and academic procrastination due to SNS use based on the combined dependent variables, student’s GPA, Failing/Rewritten courses during the last two semesters and during the entire program (Academic performance), F(6,776)=5.452, P=.000, \(\lambda=.921\). The sample questionnaire and more tables showing the results of the experiment are available on request.

Discussion

The result of this study indicates that the Social Network Service (SNS) usage is significantly related to student’s academic performance as shown in Table 1, Table 2 and Figure I. Likewise, academic self-efficacy is also a significant factor in determining student’s academic success as shown in Table 3 and Figure II. That is, the SNS usage is negatively related to the GPA; while academic self-efficacy is positively related to the GPA. To further verify the result of the study, ANOVA and MANOVA were carried out. The result as well shows that there is statistically significant interaction effect between SNS usage and academic performance. Academic self efficacy is also found to be positively related/associated with academic performance (GPA). These findings are in line with the optimal flow theory which stated that the use of technology may lead to addiction [1]. The result of this study is also consistent with the growing evidence that college students’ internet and SNS applications usage are negatively associated with academic performance, as well as mental and physical health [8, 9].

Another finding from the study is that academic performance does not differ in term of sex or ownership of computer or smart phones. This again is consistent with previous studies in the literature where no difference is discovered between the sexes in internet usage [5].

We are of the opinion that this research work has important practical implication to the developing countries, particularly to the Nigerian Federal and State ministries of Education, higher education administrators, teachers and students. As there is a need to carefully consider the findings of this study in formulating policies regarding the appropriate use of internet, especially as it concerns SNS applications in educational settings.

Summary, Conclusion and Recommendation

Summary of Findings

The purpose of this study was to examine the influence of two variables i.e. (SNS applications usage, academic self efficacy), on students’ academic performance (GPA). The result showed that there is a significant negative correlation/relationship between SNS usage and student’s academic performance. Likewise, academic self-efficacy was discovered to be a significant factor in determining student’s academic performance, i.e. academic self-efficacy is positively related to academic performance. Findings from this study further showed that the level of academic performance is not determined by sex, age, ownership of computer or smart phones. Furthermore,
literature on the subject area contains studies that directly and indirectly support our findings. Studies on this subject have reported that the more time people spend on internet, the more their productivity in school or working lives decreases [5].

**Conclusion**

We conclude that SNS addiction could account for poor academic performance among students in Nigerian tertiary institutions. Since students who spent a very large part of their time (six(6) or more hours a day) on SNS recorded poor academic performance. This means that they were unable to devote sufficient time to their academic work and studies, hence the academic failure they experienced. Thus we can conclude that academic self-efficacy is a significant positive contributing factor to good student’s academic performance.

**Recommendation for Future Studies**

Our investigation centered on the use of SNS applications, academic self efficacy as it relates to student’s academic performance in Nigerian tertiary institutions. There are some limitations to this study which can be improved in any future work. The study could be taken much further by investigating other students’ populations from Technical, Vocational and Secondary/High schools in Nigeria. There is also a need to carry out further research in order to identify the most appropriate use of the internet technology. It is believed that the findings in this research work will go a long way in assisting relevant policy makers in formulation of policies and preparation of programs that would prevent unhealthy use of SNS technology among students of higher learning in Nigeria.

**References**


