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Effect of internet media use, interpersonal relationships and psychosocial adjustment on students' academic performance

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Abstract
This study sought to assess the effect of media (Internet) Use, interpersonal relationships and psychosocial adjustment on students' academic performance among polytechnic students in northern Nigeria. The population studied is of first year students of three (3) institutions sampled for the study which stood at 4,355 with a sample size of 384. The survey research design was adopted. This study finds Internet usage to have significant effect on psychosocial outcomes and interpersonal wellbeing of students, while there is no significant direct relationship between internet use and academic performance. Findings from this study lend credence to the major theoretical paradigm on the social impact of Internet use -social augmentation. On the flipside, data in the present study did not lend support to the central postulation of the social displacement model which suggests that Internet use in form of the claim that online communication detracts from the interpersonal wellbeing of adolescents by consuming of their time that could otherwise have been spent with existing friends (physically present).Based on these findings, the study recommends among others, that the curriculum of students of tertiary institutions for various courses should be enhanced to include good study guide using media literacy.

Keywords: Internet media use, psychosocial adjustment, interpersonal relationships, academic performance

1. Introduction

Media use and educational achievement of students has a long tradition of research. However, in the last few decades, the field of education has been transformed by the profound role of the Internet. The academic community at all levels is undergoing transformation in the areas of information access, usage, storage and sharing with the aid of digitally-enabled devices which make data amenable to all forms of manipulation.

Evidence has shown that students have used the pool of information provided by the Internet to improve their output (Jones, 2002; Metzger, Flanagin & Zwarun 2003). Unlike the conventional teacher-centred and text-book based classrooms, the Internet provides a range of powerful tools that may help in transforming the learning environment into rich, student-focused, interactive experience for students in both formal and informal settings (Dorji, 2015). Enumerating specific benefits, the Internet offers students in tertiary education; Suhail and Bargees (2006) identified increasing communication with classmates and professors, increasing access to libraries and educational databases, and improving study hours and study habits as some of the positive ways the Internet impacts on students.

In spite of the numerous positive ways the Internet contributes to the academic life of students, findings from previous studies reveal some negative consequences of Internet usage among all ages, especially students in their young age. Akhter (2013)

reported that excessive Internet usage can negatively affect one's physical health, family life and academic performance. Academic related problems might "include decline in study habits, drastic drop in grades, missing classes and poor integration in extracurricular activities" (Dorji, 2015 p.8).

Also, as Chen and Peng (2008 p.1) noted, "psychologists and educators are aware of the potential negative impact from excessive use and related physical and psychological problems" of Internet usage. Evidence abounds on how users who spend considerably long hours online suffer relational or social, academic, financial, and work-related difficulties; sometime even physical impairments (Antonia, Nele & Birgit, 2014). Researchers have found evidence of link between Internet use and psychological problems such as depression and isolation or loneliness (Costa, Cuzzocrea, & Nuzzac, 2014; Wentworth, & Middleton, 2014).

Despite development in Internet and communication infrastructure, standard of academic achievement in Nigeria continues to dwindle. This appears startling in the face of incontrovertible evidence on the connection between Internet media exposure and use, and academic performance, especially the effect of new media on academic performance. For example, in the institutions under investigation, the levels of academic performance in the past five years according to some members of Academic Staff Union of Polytechnics (ASUP) in a preliminary investigation by the authors of this article, gives an appalling picture.

This discussion gives rise to such questions as to what type of Internet media exposure or use do the students generally have? What are the patterns of their Internet Use? What are the relationships between their Internet media use and academic performance? What are the roles played by their demographic profiles on the relationship between Internet media use and psychosocial adjustment and academic performance? Do psychosocial adjustment and interpersonal relationships mediate between Internet media exposure or use and academic performance? etc. Studies elsewhere show a strong relationship between Internet media use with academic performance, but in Nigeria, in the face of the present-day Internet popularity and revolution among the youth, academic institutions continue to lament the falling standard of students' achievement by the passing day (Odia & Omofonmwan, 2007). The widespread exposure and use and pervasive reach of interactive media are crucial factors in adolescent psychological and social development and culture. Yet there has been back and forth on reaching a definitive conclusion on these phenomena and their potential effect on aspects ranging from psychosocial adjustment to academic achievement. This gives rise to the question whether in literature there is a possible explanation to this paradoxical puzzle. To discuss this subject matter holistically, along with the issue of Internet media use, literature gives a snippet of associated constructs that could interact with Internet media use to account for variability in academic performance among students, but it appears no study attempted to give this all-encompassing approach. Modelling this holistic approach may give a novel perspective to explaining the portion of Internet media exposure and use possibility of having effect on students overall psychosocial wellbeing and academic performance. Therefore, this study seeks to determine the effect of Internet use on students' academic performance, Interpersonal relationship and psychosocial adjustment and the interrelationships of these constructs with students' academic well-being.

2. Literature Review

Internet media use in this study this refers to both exposure and use of the Internet media technology in all its diverse purposes such as Economic Use, Social Use,

Personal Use and Cultural Use. *Interpersonal Relationship* is generally the affiliation an individual (in the context of this study a young adult) maintains with others in his/her life generally. This relationship includes Trust, Communication, Comfort, Empathy and Self Disclosure. While *Psychosocial adjustment* is the gradual adaptation in terms of psychological and social well-being of tertiary students. In this study, the term operationally includes such traits as self-esteem, self-reliance, relationship with parents, social stress.

In this study, *Academic performance* is a student's overall academic performance over the immediate past school year, measured by the Demographic Academic Performance Questionnaire on Cumulative Grade Point Average requested on the sampled students' results of second semester 2019/2020 academic session.

Effect of Internet Use on Students Academic Performance and Interpersonal Social Relationship

Studies seeking to establish relationship between the use of different aspects of Internet and academic performance delivered mixed results. For example, studies noted that students are paying more attention towards social networking activities rather than utilizing the time for their studies and this surely affects their academic performance, as Thomas Iventosch, Rohwer (1987) stated that activities of students are associated with grade-related differences among them. Karpinski (2009) found that Facebook usage is negatively correlated with collegiate grade point averages (CGPAs) of its users. But conversely surprisingly the study reported that79% Facebook users denied having any adverse impact of this usage on their CGPAs. This means they are not even aware of the fact that their networking habits are affecting their academic performance. Khan (2009) also found that Facebook users had poor performance in exams. While Englander, Terregrossa and Wang (2010) observed that Internet usage is negatively associated with academic performance of student users and destructive impact of Internet usage is far more momentous than its advantages. Similarly, Banquil et al. (2009) found a continuing drop of grades among student users of social networking sites.

The invention of new technologies beginning from television, smartphones and social media, has often been greeted with fears of their tendencies to cause decline of face-to-face interactions and the potential of decreased happiness. However, a research conducted at the University of Missouri, Hall, Kearney and Xing have (2018) found that social media use has no significant negative effect on social interactions or social wellbeing. Surveyed students constantly report that they find online resources useful (Kenny, 2003).

Through the use of social networking sites, students are able to express themselves, communicate and collect profiles that highlight their talent and experience. According to Konetes and McKeague (2011), students are using Facebook and other channels to develop their identities, beliefs and stances on various issues such as politics, religion, economy and work, as well as to pioneer and develop intimate relationships. Also, Gross (2004) notes that students use social networking sites not only for leisure and personal socialization but also as a platform for more meaningful and serious deliberations, and they are using social networking for making friends, sharing links, online learning, finding jobs to accomplish their economic, educational, political and social being. Researchers have fast realized the need to incorporate this into the educational faculties, as a resource to support the educational communications between students and faculties, even though institutions of higher learning have tried preventing students from accessing technologies which are of less importance to their academic pursuit.

There is a plethora of positive impacts to students or users associated with the use of social networking sites. However, from the study carried out by Konetes and McKeague (2011 p.4), certain revelations about the use of the social networking sites especially Facebook, the study reports that, ‘‘students are using Facebook and other channels to develop their identities, beliefs and stances on various issues such as politics, religion, and work, as well as to pioneer and develop intimate relationships. In support of the benefits that social networks have on interactions among students and teachers, it is pointed out that social networks which initially focused on supporting relations between teachers and students are now used for learning, education, profession development, and content. Ming for teachers, learn central, teacher-street and other sites are being built to foster relationships that educational blogs, *eportfolios*, formats and adhoc communities, as well as communication such as chats, discussion threats etc. These sites also have content sharing and rating features. Also, according to Notle (2010) social networking helps in leveraging and complementing formal education activities and enhancing learning outcomes in universities and other educational institutions.

Students Internet Use and Psychosocial Adjustment

In their comprehensive initial HomeNet research, Kraut, et al. (1998) (as cited in Windham, 2008) claimed finding a direct relationship between increased Internet exposure and use and loneliness, depression, and social disconnection among adolescents. Other studies have reached seemingly similar conclusions (e.g., Beebe, Asche, Harrison, & Quinlan, 2004). However, the chunk of recent study, including a study by Kraut et al. (2002) (as cited by Windham, 2008), has led to a reconceptualization of the psychosocial effect of Internet use. For example, McKenna and Bargh (2000) submitted that situational and personal variables happen to be more important in terms of impact than the type or amount of Internet use literally. In the same vein, Gross (2004) found no link between the length of time spent by adolescents on any of a range of Internet activities and psychological adjustment. A study by Gross, Juvenon and Gable (2002) concluded that how close teenagers felt to the people with whom they have communicated online happened to be a predictor of psychological wellbeing. Adolescents with social anxiousness or loneliness were more likely to interact with strangers online or people who were not close friends and teenagers who are well-adjusted tended to communicate online with close, offline friends. Several researchers have marked that Internet use could have a range of social and psychological benefits for many adolescents (e.g., Shaw & Gant, 2002; Subrahmanyam et al., 2001 as cited in Windham, 2008). Heitner (2002) detected an association between time spent on instant messaging and extent of social adjustment. Her finding also went on to reveal that teenagers spending time online often engaged in asynchronous and solitary participation i.e. reading or writing e-mails. They were found to be relatively more socially introverted or withdrawn than adolescents taking part in social exchanges with others online. In view of the above reviewed literature, the following hypotheses are posed:

H1: Internet use has significant positive effect on psychosocial adjustment of students.

H2: Students Internet use has significant and negative effect on students' academic performance.

H3: Internet use has significant negative effect on interpersonal relationships among the students.

3. Methodology

Design, Population, Sample Size and Sampling Method

This study adopts the survey design in which data were obtained from a structured quantitative data. The target population of the study comprised of all the students of the four (4) federal polytechnics in North-Eastern Nigeria (The Federal Polytechnic Bauchi, Federal Polytechnic Damaturu, Federal Polytechnic Mubi and Federal Polytechnic Bali). However, Federal Polytechnic Mubi was dropped from this study because the researchers could not be allowed access to information on the students' nominal registers and CGPA, which is the main dependent variable, but because of cultural homogeneity and other similarities of academic administration, it is hoped that the conclusions of the study can generalize to the tertiary institutions of the region. Again, federal polytechnics in the region were selected because they have wider catchments areas, encompassing students from other states of Nigeria, which do not have federal polytechnics among the six states of the Northeast.

Only first year students were used for data collection because second year students are at the verge of graduating when the study was conducted. From records, the total population of the first-year students of these three (3) institutions stood at 4,355. Thus, sample size determination using Krejcie and Morgan (1970) Table of sampling at 95% confidence level, based on the above population is 354.The sampling technique used in this research comprised of cluster sampling technique. In cluster sampling, the population was clustered (grouped) based on institutions. Proportionate sampling was used to allocate samples to each institution based on their proportion in the population. Simple random sampling was then used to select the schools, then the departments, then the classes. For each institution, the proportion of the sample size allocated to it is divided into the number of classes that such a sample size can accommodate. Then the classes were randomly picked in the multistage process identified above.

Measures of the Study Variables

Internet Use

Internet Use is a multidimensional construct that has been defined severally in terms of time frequency of use and spent online, often without considering the type or purpose of use (Livigstone & Helsper, 2010, Windham, 2008). Interpersonal Relationship scale was adopted from Garthoeffner, Henry, and Robinson's (1993) 49-items. The measure of Psychosocial Adjustment, defined as a composite scale comprising Personal Adjustment composite and reverse-coded. Social Stress scale from the BASC—SRP-A, has been adopted from Windham (2008). Hence, the current study adopts the measure of Psychosocial Adjustment (α = .90) as explained above.

Data Collection

Since the population under investigation is tertiary students, considered literate enough, a self-administered questionnaire survey was adopted to collect quantitative data from the students.

This study was conducted by the researchers and a trained research assistant. The team physically visited the institutions and administered the questionnaire to students in classrooms. Respondents were constantly reminded that it was not an examination; each respondent was just expected to fill out their opinions or views as the questionnaire items applied to them. Overall, within the period of data collection, 330 responses were returned out of the 389 distributed.

Data Analysis Procedure

Data were coded, inputted and cleaned and double-checked. Research Objective 1 & 2 were analysed in descriptive statistics tools, while Research Objectives 3 with PLS SEM. For the descriptive statistics of the constructs, composite score for each respondent on Internet exposure was computed and converted to percentage.

Levels of Internet use were categorized into high exposure level (61-100%), moderate exposure level (31-60%) and low exposure level (≤30%) (Naugle & Hornik, 2014). Interpersonal relationship was also computed to obtain an overall composite score for each respondent which was converted into percentage. Levels of Interpersonal relationship were categorized as low for participants scoring ≤ 50%, moderate for participants scoring between 51 and 74%, and high for participants scoring ≥ 75% (Nubed & Akoachere, 2016). Scores for psychosocial adjustment were as well computed to obtain overall composite score for each respondent and converted into percentage. The same procedure was followed to obtain levels of adjustment as is the case with Internet use. In this study, the significance level for rejecting or failing to reject hypotheses is .05 for H1 to H3, which are based on already theorized relationships in literature. However, because the moderation analyses which are hypothesized in other hypotheses are exploratory, the significance level is posited as .10, because according to Hair et al (2017), if a research is exploratory .10 is the appropriate level of significance to be considered.

4. Results and Discussion

From the 389 sample, 330 respondents returned the completed questionnaire. The remaining 59 students who did not turn up were considered as non-response, giving rise to 86% response rate. Based on Jobber's (1989) definition of response rate therefore, a response rate of 86% is considered as highly adequate for analysis because according to Sekaran (2003), even a 30% response rate was considered adequate for surveys.

Extent of Internet Use (IU), Interpersonal Relationship (IR) and Psychosocial Adjustment (PSA) among the Respondents

In the Mean distributions of Internet Use construct dimensions, except for Economic Use (IUE) which has an average mean of 2.6, all other dimensions of Internet Use among the respondents recorded high Mean scores ranging from 3.1 to 3.5 (M 3.51, SD 1.46) in the scale of 5 points as summarized by Table 1. The Table also depicts Mean scores for Interpersonal Relationship dimensions are generally average, with Interpersonal Relationship of empathy (IRE) recording the highest Mean (M 2.71, SD 0.92) in the scale of 5 points. Among psychosocial construct dimensions, that of social stress (PASS) adjustment has the highest Mean (M 3.09, SD 0.99) in the distribution of the respondents, while relationship with parents PARP adjustment dimension records the lowest Mean (M 1.8, SD 0.73). This finding is remarkably suggesting that the students have poor adjustment in relating with their parents. Could this finding explain the situation observable in northern Nigeria that in many homes' parents do not have strong control over their children and the children do not listen to their parents as claimed by writers and portrayed in films and TV dramas on the region? The reason for this finding needs to be probed further qualitatively. The psychosocial adjustment dimension with the highest Mean score is self-reliance dimension with a mean score little lower than 3 (M 2.99, SD 0.98).

Table 1: Mean Scores of First Order Constructs

Constructs	Dimensions	Mean	Standard Deviation
Internet Use (IU)	IUE	2.6096	1.5089
	IUC	3.1146	1.46842
	IUS	3.4956	1.39922
	IUP	3.5121	1.46313

Interpersonal Relationship (IR)	IRT	2.6707	0.8521
	IRD	2.61	0.77032
	IRG	2.5924	0.88564
	IRE	2.7127	0.92155
	IRC	2.4222	1.06802
	IRCO	2.2939	1.26141
Psychosocial Adjustment (PSA)	PASE	2.9955	0.90699
	PASR	2.6174	1.22981
	PARP	1.7697	0.73821
	PASS	3.0909	0.98577

Source: Researcher's computation

Respondents generally recorded average Means of Interpersonal Relationship (M 2.60, SD 0.57) and Psychosocial Adjustment (M 2.45, SD 0.63), while a close to high mean score was recorded for Internet Use as summarized by Table 2. This remarkable result on students Internet Use could be attributed to the increased access to the Internet facilities recorded in recent times through the use of handsets of GSM and other cheap means, and the increased adoption of computer-based examinations by some examination bodies in Nigeria.

Table 2: Mean Scores of Second Order Constructs

Constructs	Mean	Standard Deviation
Internet Use (IU)	3.1561	1.11146
Interpersonal Relationship (IR)	2.6054	0.57352
Psychosocial Adjustment (PSA)	2.4513	0.63979

Source: Researcher's computation

Respondents' Levels of Internet Use, Interpersonal Relationship and Psychosocial Adjustment

Results were also filtered to determine respondents' levels in terms of the Constructs under examination. The scores of respondents for each construct were converted to percentage and 100 was divided into 3. Interestingly as contained in Table 3, data shows that for each of the constructs, there is almost equal percentage of participants across low, moderate and high levels. This means that the sample is almost equally distributed across low, moderate and high on the basis of the three constructs.

Table 3: Respondents' Levels of IU, IR and PSA

Level	IU Freq. (%).	IR Freq. (%)	PSA Freq. (%)
High	108(32.8)	111(33.6)	113(34.2)
Moderate	112(34.0)	108(32.7)	107(32.4)

Low	109(33.1)	111(33.6)	110(33.3)

Source: Researcher's computation

Assessment of Measurement Model (Outer Model)

Individual Item Reliability

As reliability of indicators varies, reliability of individual indicators should be estimated with care. Item reliability determines how well each item relates to their respective constructs, which is referred to as simple correlation. In PLS estimation, individual item reliability is assessed by checking the loadings of items for reflective constructs. The loading scores are obtained from bootstrapping result of PLS. Researchers postulate that a latent construct should ideally explain a substantial part of the variance of each indicator (mostly at least 50%) (Vinzi, Chin, Henseler, Wang, 2010).Going by Hair et al. (2017), in assessing individual item reliability in reflective constructs, the outer loadings of constructs' measures were examined. For retaining any item, the rule of thumb is that its loading must be above .40. Eighty-nine items made the threshold above 0.40 loading from the survey items with loading 0.60 as the lowest, the rest with loadings lower than the threshold were deleted.

Since there is no requirement for a normality distributed data set for PLS analysis (Chin, Marcolin&Newsted, 2003), a test for normality such as Skewness and Kurtosis or the Kolmogorov-Smirnov test is not necessary (Jackson, 2008) like covariance SEM.

Internal Consistency Reliability

Internal consistency is used to determine the convergent validity of a measure to ensure there is a correlation among the items of a construct. This is usually evaluated by:

Composite Reliability/Convergent Validity:

As cut-off point value for internal consistency, Bagozzi et al. (1998) recommended 0.60. Though similar to Cronbach's alpha, Chin (1998) submits that there is no such assumption that all indicators for internal consistency are equally weighted in PLS. Internal consistency values for all reflective constructs of this study exceeded the 0.70 by Nunnally (1978). In this study, Internal consistency reliability is estimated by both Cronbach's Alpha and Composite reliability, which are both shown in Table 1 with the construct 'communication' having the lowest Alpha .598, above the benchmark of .5. Except for 'communication', all the constructs which scaled or met the requirement for the measurement model have Alphas >0.7 and composite reliability >0.8, which means sufficient internet consistency reliability as shown by Tables 4.

Table 4: Indicator loadings and Reliability Assessment

Variable	Item Loadings	Composite Reliability	AVE	Variable	Item Loadings	Composite Reliability	AVE
Cultural		0.882	0.568	S-Disclosure		0.782	0.558
IUC2	0.811			IRD1	0.812		
IUC3	0.862			IRD3	0.678		
IUC4	0.82			IRD4	0.765		

IUC5	0.811			IRD5	0.823		
IUC6	0.74			IRD8	0.891		
Economic		0.916	0.511	IRD11	0.712		
IUE1	0.723			IRD12	0.743		
IUE2	0.779			IRD14	0.659		
IUE3	0.712			IRD15	0.723		
IUE4	0.804			PSRP19	0.674		
IUE5	0.779			C-Comm.		0.823	0.702
IUE6	0.741			IRCO1	0.745		
IUE7	0.747			IRCO2	0.921		
IUE8	0.683			Comfort		0.926	0.714
IUE5	0.779			IRC2	0.881		
IUE9	0.815			IRC3	0.866		
IUE6	0.741			IRC4	0.864		
IUE10	0.657			IRC5	0.787		
IU Personal		0.903	0.515	IRC6	0.822		
IUP4	0.723			Empathy		0.889	0.617
IUP5	0.694			IRE1	0.771		
IUP6	0.827			IRE2	0.847		
IUP7	0.75			IRE3	0.742		
IUP8	0.79			IRE4	0.634		
IUP9	0.79			IRE5	0.891		
IU Social		0.937	0.623	IRE6	0.675		
IUS1	0.681			IRE7	0.885		
IUS2	0.608			IRE8	0.728		
IUS3	0.66			IRE9	0.747		
IUS4	0.629			IRE10	0.831		
IUS5	0.682			G-ness		0.888	0.667
IUS6	0.638			IRG1	0.654		
IUS7	0.742			IRG2	0.761		
IUS8	0.602			IRG3	0.733		
IUS9	0.706			IRG4	0.697		
R-Parent		0.747	0.512	Trust		0.929	0.519
PSRP1	0.667			IRT4	0.759		
PSRP2	0.794			IRT5	0.709		
PSRP4	0.671			IRT6	0.691		
PSRP5	0.861			IRT7	0.667		
PSRP7	0.876			IRT8	0.794		
PSRP10	0.614			IRT9	0.803		
PSRP13	0.676			S-Resilence		0.936	0.547
PSRP16	0.659			PSR2	0.707		
PS S-stress		0.893	0.518	PSR3	0.709		
PSS2	0.812			PSR4	0.722		

PSS4	0.754			PSR5	0.74		
PSS7	0.702			PSR6	0.698		
PSS8	0.814			PSR7	0.669		
PSS9	0.761			PSR8	0.795		
S-Esteem		0.812	0.665	PSR9	0.765		
PSE1	0.702			Performance		0.918	0.544
PSE2	0.814						
PSE3	0.803						
PSE4	0.742						
PSE6	0.761						
PSE7	0.759						

AVE- Average Variance Extracted

	A-Perf	Comm	Cul	Econ	Empha	G-ness	ITR	Pers	R-par	Relie	S-Disc	S-comf	S-est	S-str	Soc
A-Perf															
IR Comm	0.224														
IU Cultural	0.196	0.107													
IU Econmc	0.088	0.045	0.579												
IR Emphat	0.191	0.444	0.107	0.150											
IR G-ness	0.136	0.645	0.083	0.097	0.784										
IR Trust	0.445	0.176	0.304	0.218	0.184	0.196									
IU Pers	0.404	0.142	0.583	0.279	0.172	0.158	0.440								
PS R-Par	0.645	0.174	0.233	0.112	0.189	0.182	0.348	0.466							
PS S-Relie	0.910	0.135	0.099	0.061	0.103	0.136	0.282	0.219	0.357						
IR S-Disc	0.162	0.553	0.143	0.174	0.300	0.696	0.328	0.219	0.165	0.173					
IR-comf	0.195	0.896	0.087	0.050	0.661	0.694	0.234	0.133	0.161	0.138	0.402				
PS S-est	0.402	0.684	0.390	0.188	0.424	0.537	0.432	0.385	0.627	0.205	0.452	0.611			
PS S-stress	0.377	0.113	0.280	0.156	0.152	0.166	0.178	0.292	0.244	0.525	0.152	0.126	0.352		
IU Soc	0.160	0.074	0.771	0.368	0.104	0.148	0.285	0.747	0.312	0.177	0.108	0.087	0.417	0.337	

Table 5: Discriminant Validity

Discriminant validity here (see Table 5) is assessed by HTMT criterion (Hair, et al. 2017). The benchmark for HTMT discriminant validity criterion for pairwise correlations between constructs according to Hair, et al. (2017) is it should not be close to 1, i.e., more than 0.90. In the observed correlations in this study as shown in Table 4.6, only the correlation between self-reliance and academic performance is above 0.9, and, here, because the constructs are conceptually recognized as distinct, they must be theoretically considered as such. More so, as Hair, et al. (2017) put it, if the mean of all the pairwise correlations is taken, a much low value will be arrived at because in the case of all the observed correlations in this study, the mean will be much low because as Table 5 shows, majority of the correlations are below 0.5.

Assessing the Structural Model

Reliability and validity of outer or measurement model estimates make for the assessment of the inner (structural) path model estimates (Vinzi, Chin, Henseler, Wang, 2010).

The Structural Model's Explanatory Power

In the first instance, R^2 value is determined for each predicted variable in order to assess the explanatory power of the model under consideration. R^2 represents the degree to which the exogenous constructs explain the endogenous or dependent constructs.

Table 6: R-Squared value

Variable	R Square
A-Performance	0.340

Based on the R^2 estimates as shown in Table 6, the antecedent independent factors explain 34 % of the variance for Academic performance.

Boot-Strapping Output of PLS for the Structural Model

This statistical analysis is assessed by evaluating the beta (β) estimates and the t-values. As presented in Table 7, the path coefficient values (β) were shown for hypothesized paths that connect the constructs, while t values are also shown. The table illustrates that one relationship is not statistically significant. In general, this shows that the link between the constructs through the path was not strong enough to be considered significant.

As indicated in Table 7, the effect of Internet Use, which was in this study hypothesized to have significant positive effect, was found as significant and positive on Psychosocial Adjustment (Psycho-A) (β=0.425; t=4.529 p. 0.00), supporting H1. However, H2 which anticipated the negative effect of Internet Use (I-Use) on Academic Performance (A-Perf), detected an insignificant negative effect (β=-0.172; t=1.959 p. 0.51), whereas the effect between Internet Use and Interpersonal Relationship H3 was found to be positive and very strong (β=0.782; t=36.199 p. 0.00).

Table 7: Assessment of the Research Hypotheses

Hypotheses (PR)	β	(STDEV)	T Statistic	P Values	2.50%	97.50%	Significant
I-Use -> A-Perf	-0.172	0.088	1.959	0.051*	-0.354	-0.023	No
I-Use -> I-Relation	0.782	0.022	36.199	0.000**	0.743	0.825	Yes
I-Use -> Psycho-A	0.425	0.094	4.529	0.000**	0.244	0.621	Yes

(PR= Path Relation, β =Path Coefficient, Significant *p<0.05, **p<0.001,

Discussion of Results

The current study observed that use of the Internet by participants had an overall positive effect on psychosocial adjustment. This finding lends credence to the major theoretical paradigm on the social impact of Internet use -social augmentation. The social augmentation model posits that Internet use or online communication strengthens adolescents' social resources through providing new platforms for interaction with existing friends, and by so doing, enhancing social and psychological well-being (Valkenburg & Peter, 2007). This study therefore finds Internet usage to exert a definitive payoff with respect to psychosocial outcomes and wellbeing.

On the flipside, data in the present study did not lend support to the central postulation of the social displacement model which suggests that Internet use in form of online communication detracts from the interpersonal wellbeing of adolescents by consuming of their time that could otherwise have been spent with existing friends (physically present) (Nie, Hillygus, & Erbring, 2002). The model was in fact based in part on the theoretical supposition that time spent online is intrinsically prima facie asocial, and that any online relationships a teenager cultivates would be detached from, and be of a lesser quality than a "real life" friendship offline. However Gross (2004) observed that this presumption has become out of date as now adolescents increasingly began adapting to the growing assortment of Internet technologies, escalating the possibility that teenagers would relate with their "real-life" friends both online and offline. Almost every participant in the present study reported having access to, and making some use of the Internet media. The critique of the social displacement model by Gross (2004) has full support in the finding of the present study that Internet use has direct positive relationship with interpersonal relationship among the participants. This literally means quality of interpersonal relationships does not depend on whether interaction takes place offline.

Students Internet use was predicted to have a significant positive relationship with psychosocial adjustment. An overall positive link was found in this study between participants' use of Internet and psychosocial adjustment. Student's use of Internet was associated with better adjustment. This study aligns with or is in consonance with what similar past studies found like Heitner (2002) who detected a link between time spent on instant messaging and extent of social adjustment, who went ahead to reveal that teenagers spending time online often engaged in asynchronous and solitary participation, i.e. reading or writing e-mails. They were found to be relatively more socially introverted or withdrawn than adolescents taking part in social exchanges with others online. This account indirectly indicates complete online engagements. It is also in line with the finding of a related study by Gross, Juvonen and Gable (2002) which observed that adolescents who send instant messaging to people (whom they considered close to them offline) reported low levels of loneliness and social anxiety. On a similar vein, the current study also aligns with Kraut, Kiesler, Boneva, Cummings, Helgeson and Crawford (2002) which reported that there was a positive relationship between Internet use in adolescents in terms of social support and being extrovert.

Second, students' use of Internet was predicted to have a significant negative relationship with academic performance, and results from data in this study rejected this hypothesis, showing that IU is actually negatively related with academic performance but the relationship is not significant. Student's use of Internet was not associated with higher grade point average. This finding is not in line with Karpinski (2009), which found that Facebook usage is negatively correlated with collegiate grade point averages

(CGPAs) of its users. While at the same time Englander, Terregrossa and Wang (2010) observed that Internet usage is negatively associated with academic performance of student users, and destructive impact of Internet usage is far more momentous than its advantages. Similarly, Banquil et al. (2009) found a continuing drop of grades among student users of social networking sites. These studies are all not in line with the current study. However, Windham (2008) posits that greater use of socially interactive technologies had association with lower levels of academic performance, going on to submit that students who reported higher frequencies of use of e-mail tended to reap better GPAs than their peers with less e mail use.

Third, Internet use was predicted to have significant negative effect on interpersonal relationships among the students. The hypothesis was supported by the study results, which found that student's Internet use was significantly related with interpersonal relationship, however the direction of the relationship was positive, contrary to how the hypothesis predicted.

This finding is not in line with Chen and Peng (2008) which predicted that there will be statistically significant difference in terms of interpersonal relationships between heavy and non-heavy users of Internet. And the result of their study supported the hypothesis, with non-heavy Internet users having better interpersonal relationships. However, there was no significant difference between heavy and non-heavy users in terms of peer relationships. Furthermore, in the Italian context, Milani, Osualdella and Di Blasio (2009) found a significant negative relationship between quality of interpersonal relationships and problematic Internet use (measured with Internet Addiction Test). These findings pose a contradiction and a lack of clarity on the subject matter, tthe current study suggests the more IU a student has, the better their interpersonal relationships. This finding could be suggesting a shift perhaps because the Internet was gradually becoming a tool that people now use to do many of the things that they did when they are physically present in one place.

5. Conclusion

It is concluded in this study that social use of Internet plays a complementary role or extends from traditional social behavior, just as described by social network theory that socially interactive technologies are just the latest in the ever-expanding wave of ways to interact generally. Wellman et al. (2001) posit that the Internet has become a routine constituent of culture that fills the need for supplementary interpersonal contact complementing face-to-face and telephone interactions. It is also concluded that Internet use and academic performance have no significant relationship, the direction of relationship found, though insignificant, is negative. This conclusion somewhat somehow confirms findings by other studies which suggest Internet use is associated with students' declining grades, or other problematic outcomes. However, with the mediation of interpersonal relationship and better psychosocial adjustment, Internet use has a significant positive relationship with academic performance.

6. Recommendations and Implication for Teachers, Parents and Counselors

Result of the current study suggests, for most undergraduate students' Internet use, social use and otherwise are not linked with negative psychosocial implications, and may instead offer some social benefits. For teachers, parents and counselors and all those in related line ministries, findings of this study suggest a useful departure from the panicky presentations in popular media on dangers of Internet use for young people. Some of the concerns articulated about adolescent Internet use are ingrained in a fright of losing control of teenagers' thinking (more especially girls), accessing online communication technologies.

Studies like the current one discovers a departure from the usual assumptions that Internet exposure is always harmful to adolescents. In a related plain, Tynes (2007) submits that parents should not all together block adolescents or young adults using social networking sites or generally from interacting with peers online because doing this "might close off avenues for beneficial cognitive and psychosocial development that are available to young people in the online social world (p. 576). As an example, buttressing the positive outcomes of Internet use, Tynes (ibid) observes that in some instances the Internet provides an opportunity for a virtual arena where young adults can try out ideas, request for input, and fine-tune skills for decision-making. Another advantageous outcome of online communication may be to heighten young adults' sense of social support, which could safeguard psychological and physical effects of stressful life events.

The curriculum of students of tertiary institutions for various courses should be enhanced to include good study guide using Internet Media Literacy. Doing this would equip students with good knowledge of how to make beneficial use and avoid online risks, thereby reducing problematic outcomes.

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