Challenges Facing Internet Connectivity: Perspectives of Private Cyber Cafes

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Abstract

The study investigated apparent challenges facing Internet connectivity and access with particular attention to small and medium scale cyber cafés in the Accra metropolis. Descriptive and explanatory design was used for the study. A researcher-designed questionnaire was used to collect data from 62 private Internet cafes selected through a convenience sampling technique. The study confirmed previous findings that suggested that many private cyber cafés have folded up in the past apparently because of the unending power crisis, poor communications infrastructure, exorbitant Internet charges and unfair monopoly and unnecessary competition between state-owned ISPs and small and medium cyber cafés. The study recommended further studies to determine whether factors which undermine the growth of Internet connectivity and access, together, predict quality of Internet reliability as well as the strength of any model in explaining the variations in the quality of Internet connectivity and access within the Accra metropolis.

Keywords: challenges, quality, Internet connectivity and access, private cyber cafés, Internet reliability

1. Introduction

The right of entry to Internet is a critical driver of an accelerated development and economic growth in any advanced education, and Ghana is no exception. For example, the widespread global movement towards the digitalisation of education system shows that it is imperative that Internet connectivity and access are given the necessary attention to ensure that learners are adequately equipped with digital skills and a quality education. One factor driving demand for reliable Internet connectivity and access is that learners are increasingly interested in online learning, either because they want to take a class not offered at their school or they want a more personalized learning experience where they can learn at their own pace. Slow Internet speed and its associated problems can be obstacles to integrating technology effectively into teaching and learning.

Public access to ICT is available to various extents in most of the larger urban centres in Africa through privately owned cyber cafés, but access is generally non-existent in rural areas. The cyber cafés in Ghana provide public Internet access and ICT training to local learners and forthose who can afford to pay. According to Mahama [1], private Internet cafes, widespread in most communities, are prevailing as central toactivities and as the most significant locations that influence involvement and interactions in ICT activities by young learners outside school settings, and that the role of private Internet cafes can no longer be overlooked in the teaching and learning of ICT. The major constraints faced by these small and medium enterprises (SMEs) are inconsistent or unavailable supply of electricity, lack of ICT equipment, overcrowding of computer labs, and lack of affordable access to connectivity with acceptable bandwidth. This assertion iscorroborated by Farrell and Shafika [2] that opined that the cost of Internet connectivity remains high-priced for most institutions of learning in Africa, and that efforts by non-governmental organisations (NGOs) and their donor agents to provide ICT equipment to schools are constantly being frustrated by the lack of Internet connectivity, unpredictable electrical supply, lack of technical support, and by a lack of access to affordable high-speed Internet connectivity.

Private sector initiative has to a large extent been instrumental in the growth of the Internet industry in

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Ghana. In 1995 Network Computer Systems (NCS) through joint collaboration with Ghana Telecom and several stakeholders enabled Ghana to become the second nation sub-Sahara Africa to acquire full Internet connectivity through an analogue leased line. NCS later upgraded to satellite gateway (Quaynor et al.) [3]. Ghana, despite being the first country to issue Internet Service Providers (ISPs) license in the West Africa sub region has been overtaken by Nigeria and Senegal as the leading provider of internet service in West Africa [4]. This development in the country needs to be viewed with concern since it is an indication of the existence of constraints to access to communications services in Ghana such as the relatively high cost of access to and low quality of communication services. All these point to the fact that there are factors hindering the growth of the Internet services and its access, and that there is the need to undertake a study in order to unearth and suggest solutions to these challenges. The study sought to

a) investigate perceived hindrances to the growth of Internet connectivity and access with particular reference to private Internet café operators in the Accra metropolis;
b) examine the extent to which factors undermining the growth of Internet connectivity and access are associated with quality of Internet services in the Accra metropolis.

The study also sought find answers to the following research questions were considered:

a) What are the perceived factors that undermine Internet connectivity and access?
b) What is the nature of association between factors that undermine Internet connectivity and access, and quality of Internet services?
c) How significant is the influence of factors that undermine Internet connectivity and access on the quality of Internet reliability?

2. Literature Review

With the widespread of mobile telephony in Africa, access to mobile broadband Internet through mobile devices such as smart phones and mobile phones, 3G modems/USB wireless modems and other portable modems, is no longer an issue. Instant access to the Internet is guaranteed whenever and wherever one is.

Even though Ghana has been ranked as the country with the highest mobile broadband penetration in Africa, she nevertheless, still remains in the lower half of ICT Development Index (IDI) rankings according to the 2010 and 2011 rankings [5]. The IDI is an index published by the United Nations International Telecommunication Union (ITU's) based on internationally agreed information and communication technologies (ICT) indicators. It is a benchmark that governments, operators, development agencies, researchers and others use for measuring and comparing ICT performance within and across countries [6]. According to Wikipedia [7] IDI is based on 11 ICT indicators which is being clustered into:

a) Access – the index that deals with ICT readiness,
b) Use - the index that focuses on ICT intensity, and
c) Skills – it captures ICT capability and expertise.

The expansion of Ghana's Information and Communications Technologies (ICT) sector has been based largely on a relatively free-market approach. In order words, the Internet industry has been fastest where there has been commercial push which is being aided by public access to Internet connectivity. The charges for Internet connectivity in Ghana is seen by most analysis as considerably cheaper in the sub-region [8]. Nonetheless, Ghana's telecommunications is still constrained by (a) monopoly, exorbitant charges, (c) reliability of Internet services, (d) infrastructure, (e) low ICT proficiency, (f) inadequate power supply, and (g) customer care and support.

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2.1 Hindrances to reliable Internet services

a) Monopoly.New fibre optic cable has not yet provided the benefits of cheaper, faster internet access because it is controlled by state-owned monopolies - or their privatised successors. Voice over IP (VOIP) stands to enhance the badly needed competition in the Ghana's telecommunications industry. The perception among consumers in the telecommunications industry is that the National Communications Authority has been remiss in its duty to monitor the quality of service by the state telecommunications providers. These problems have been aggravated by scarcity of competition in Ghana's telecom market. The monopoly by state ISPs has not corrected pricing bottlenecks in the market as well as promoted fair competition and cost effective development of the telecommunication sector.

b) Exorbitant Charges. Satellite prices in Ghana are in the same range with one reseller offering equivalent capacity for between US$3500-4000 per month. In contrast, smaller customers in Ghana are paying between US$4250-US$4900 per mbps per month and larger customers as low as US$3,000 per mbps per month. Analysts in the telecommunication industry however, see these are huge margins and that such high prices mean that the full capacity of the broadband facility is yet to be exploited [8]. The recent change in broadband andprice brought in its wake a massive demonstration by Internet customers in Ghana. The Internet Association of Ghana protested against arbitrary hike in Internet rates. According to GNA, Vodafone for example, which use to charge GH¢45.00 for unlimited use of data per month has now capped Internet usage at 15 GB of data per month and charges GH¢65.00. Vodafone defended this increase by suggesting that its previous lower price and unlimited data service was not economically viable. According to Vodafone, Internet users of the fixed broadband service subscribed to the residential bundles specifically designed for home use, and that some consumers as well as businesses on the average accessed over 750 GB of data per month as compared to 7 GB consumed by majority of home users.

c) Customer Care and Support. Many telecom and Internet service providers have in place much advertised 'care for you' centres to address customers' concerns. Almost every subscriber has a tale, and indeed an unpleasant one to tell. For instance, you call the much advertised 'care for you' centres with fault on your connectivity; count yourself lucky to speak to a voice that may sound very caring on phone. Should you hang up, then that summarises 'obituary' their much trumpeted care for customers. The customer service offered by these ISPs is quite abysmal. It often takes 20 to 24 hours for a connectivity problem to be rectified. Sometimes, a desperate customer will have to lure technicians with usual concessions to have a problem fixed [9]. In an effort to address challenges facing customer service Vodafone Ghana introduced a system called 'Remedy' to provide a quicker response to reported faults and complaints over fixed broadband service. With this new arrangement Vodafone is now able to deal with about 94 percent of the weekly reported problems within four to five days, and the remaining 6 percent are resolved eight to 14 days. Hitherto, it took 21 days to install a new service, but now it takes 14 days. It also now takes Vodafone only three days to get a survey request completed [10].

d) Internet Reliability.The Internet is slow but very slow at midday when it is presumed there is more traffic. Sometimes one has to log-out of the computer during online activities such as the West African Examinations Council (WAEC) online registration, university online registration merely because the cyber café servers cannot operate under intense pressures. Since Asymmetric Digital Subscriber Line (ADSL) was introduced not much has happened on the charges and performance front. The services and speeds are just non-existent. The perception is that Internet access in Ghana is quite unreliable, which is why charges remain exorbitant and efficiency very poor. For instance, a few years ago, there was a boom of Internet cafes and

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communication centres everywhere in the country. Today, almost all these centres are no more in operation. This can fairly be attributed to high recurrent costs and the perceived bullying by major ISPs since they entered the Internet market and are competing with SMEsin the Internet business. Rather than confining themselves with their core mandate, these ISPs have chosen to operate similar Internet cafes thereby competing unnecessarily with these small businesses, popularly known as communication centres or Internet cafes. They offer high connectivity speed to customers at exorbitant prices. This has perpetually 'killed' these SMEs.

e) Infrastructure.Satellites have proved to be the most effective method of rapid deployment of high-speed links given the lack of high-speed cable infrastructure. Network Computer Systems (NCS), the first Ghanaian Internet Service Provider in the 90s, had a 2Mb capacity satellite circuit to MAE-EAST in Virginia landing directly on the UUNET backbone. This circuit completely bypassed the existing state ISPs infrastructure. The special license granted to NCS introduced higher speed access to the Internet. Today, some of the universities are relying on Very Small Aperture Terminal (VSAT) because of its reliability. Quaynor et al. [3] suggest the Ghanaian is in quest of a fast and reliable Internet connectivity is via satellite in order to access state services and opportunities in health, education, and business. Ghana suffers from a poor basic Internet infrastructure. This makes linking the rural areas to the existing Internet cyber-highway in Ghana a major problem. In the rural areas, there is virtually no Internet connection and the Internet in these areas costs about three to five times the internet charge in the capitals [11].

f) ICT Proficiency.ICT literacy and PC penetration is very low as compared to Europe and the United States. The recent role by RLG Ghana Ltd in computer manufacture will go a long way to enhance any deficiency in PC penetration. This should boost PC penetration and put the local area networks in good position to take advantage of the infrastructure needed for full connectivity. The real explosion on the Internet is from ICT skills and personal use at various homes where the numbers in are very low, actually in the low percentage points.

g) Inadequate Power Supply. The frequent power outage and power rationing has been major challenges facing the Internet industry in Ghana. A recent technical fault disrupted internet services throughout the country. This was attributed to failure of a power reconfiguration activity on the SAT3 submarine cable station in South Africa [12]. In rural Ghana where there is poor electricity infrastructure, Internet access is almost non-existent. For almost four years electricity power in Ghana has been rationed. This has brought a lot of industries to a standstill including small and medium cyber cafes. The Internet industry was badly affected. And those who could afford resorted to standby generators to augment power supply – and this implied high charges and cost passed on to the customer.

3. Methodology

The study employed descriptive statistics in analysing respondents' views on perceived hindrances to Internet connectivity and access. Explanatory approach was used to examine the extent of association between Internet reliability and perceived hindrances to growth of Internet connectivity and access. The study used SPSS procedure to do Pearson's correlation test on the field data. The relationship between the variables was measured by means of the correlation coefficient and its significance was assessed by means of t-test at 5% level of significance [13]. Majority of the Internet Service Providers (ISPs) in Ghana are located in the capital city, Accra with a few service providers having a presence in one or two regional capitals and mining communities around the country [11]. Thus, the accessible population of the study therefore considered all the 16 districts of Greater Accra region which comprise 2 metropolitans, 7 municipals and 7 ordinary districts [14].

The convenience non-probability sampling technique was used to select 62 private cyber cafes

from 10 of the 16 districts of the Greater Accra Region of Ghana. Out of the 62 questionnaires administered to the cyber cafes, only one café failed to return its responses, giving a 98.4% response rate. Table 1 shows distribution of the participating districts and the number of private cyber cafes from each district:

A researcher-designed questionnaire was used to collect data participating cyber cafes in the Accra metropolis. A simple frequency distribution was also used for summary of respondent's demographic data. Correlation analysis was conducted in order to address the research questions at 5% level of significance.

Table 1: Participating cyber cafes

Name of District	Type of District	No. of Cafes
Accra Metropolitan	Metropolitan	7
Tema Metropolitan	Metropolitan	3
Ga East	Municipal	5
Ga South	Municipal	10
Ga West	Municipal	6
Adenta	Municipal	9
Ashaiman	Municipal	0
La Dade Kotopon	Municipal	4
Ledzokuku-Krowor	Municipal	5
Ada West	District	0
Dangme East	District	0
Dangme West	District	0
Ga Central	District	6
KponeKatamanso	District	0
La Nkwantanang	District	7
NingoPrampram	District	0
Total		62

Source: Wikipedia, 2015

4. Results and Discussion

The demographic data of private cyber cafes from the 10 districts of the Accra metropolis who participated in the survey includes the length of

operations of the cafes and the level of proficiency of the staff manning the cafes.

4.1 Demographic data

a) Period of Operation. Table 2 shows a vast majority of the cafes (52.5% of respondents) have been in operation for the past 3 years. This goes to confirm and also ensure that the responses from the study are being gathered from cyber cafes with reliable and rich background information on Internet connectivity and access in the Accra metropolis. However, a good number of cafes (about 14.8% of all participating cafes) did not provide response (missing values) to indicate how long they have been in operation.

Table 2: Operation of cyber cafes

	Frequency	Percent
Less than 3 years	20	32.8
3 to 5 years	18	29.5
More than 5 years	14	23.0
Missing values	9	14.7
Total	61	100.0

Source: Survey Data, 2015

b) Level of Education of Café Staff. Results from the SPSS procedure run on data on level of education of Café staff shows that most of the attendants are second cycle (Senior High School) leavers. They form about 39.3% of the respondents. Another sound result is that about 36.1% of the cafes engage services of graduate staff (Table 3).

Table 3: Education of café staff

	Frequency	Percent
Second cycle	24	39.3
Tertiary	22	36.1
Professional	11	18.0
Missing values	4	6.6
Total	61	100.0

Source: Survey Data, 2015

4.2 Research Question 1

The research question is presented as: What are the perceived factors that undermine Internet connectivity and access in the Accra metropolis? In order to confirm views on factors undermining Internet connectivity and access in the Accra metropolis, SPSS procedure on descriptive analysis was run on the survey data. Results of the output are displayed in Table 4. All participants in the survey associated themselves with the listed perceived barriers to efficient Internet services in the Accra metropolis (Table 4). Each questionnaire item had not less than 65% of the participants (in the survey) giving weight to the commonly espoused perceptions that there are factors that undermine the growth and quality of Internet connectivity and access in the Accra metropolis.

Table 4: Barriers to Internet services

	YES!	Yes	Not sure	No	NO!	Total
Charges	37.7	42.6	14.8	3.3	1.6	100
Compete	41.0	27.9	16.4	14.8	0.0	100
NetReliable	32.8	32.8	11.5	16.4	6.6	100
Infrast…	32.2	45.8	11.9	10.1	0.0	100
Power	63.9	24.6	6.6	4.9	0.0	100
CustCare	18.3	46.7	18.3	16.7	0.0	100
ICTskills	35.0	31.7	23.3	6.7	3.3	100

Source: Survey Data, 2015

4.3 Research Question 2

The research question is expressed as: What is the nature of association between factors that undermine Internet connectivity and access, and quality of Internet services in the Accra metropolis? In order to establish if there is some sort of relationship between Internet reliability (as dependent variable) and all obstacles to Internet connectivity and access (as independent variables), the following proposition is expressed:

H_0: the correlation is zero
H_1: the correlation is not zero

SPSS procedure was carried out on the survey data and the results are displayed in the form of a correlation matrix Table 5.

Each pair of variables includes (a) the correlation coefficient, (b) p-value, the probability (significant value) related to the t-test, and (c) the sample size. The output shows there is positive correlation between Internet reliability and (a) exorbitant charges (0.397), (b) unfair competition (0.387), (c) inadequate telecommunication infrastructure (0.435), (d) customerCare (0.323), and (e) ICTskills (0.403). Interestingly, only inadequate power supply has a moderate positive correlation (0.159) with Internet reliability.

The significance of the correlation coefficients is further assessed by means of a t-test. The p-values (significant 2-tailed) for Internet reliability and the other influencing variables are underlined as shown in Table 5. Since the p-values, the probabilities related to t-test are below the 5 per cent level of significance, the null hypothesis is rejected and the conclusion is that the correlation is significantly different from zero at 5 per cent. In other words, there is significant relation between Internet reliability and the independent variables.

There is however no meaningful association between Internet reliability and (a) inadequate power supply, and (b) CustomerCare. The p-values of these variables (0.222 and 0.012) are all greater than the 5% level of significance. Thus, the hypotheses cannot be rejected. The conclusion is therefore that there is no significant relationship between NetReliability and (a) inadequate power supply, and (b) CustomerCare.

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Table 5: Correlations Coefficients of Variables

		Charges	Competition	NetReliability	Infrastructure	Power	CustomerCare	ICTskills
Charges	Pearson Correlation	1	.348	.397	.125	.038	.504	.193
	Sig. (2-tailed)		.006	.002	.346	.774	.000	.139
	N	61	61	61	59	61	60	60
Competition	Pearson Correlation	.348	1	.387	.353	-.011	.303	.283
	Sig. (2-tailed)	.006		.002	.006	.935	.018	.029
	N	61	61	61	59	61	60	60
NetReliability	Pearson Correlation	**.397**	**.387**	1	**.435**	.159	**.323**	**.403**
	Sig. (2-tailed)	.002	.002		.001	.222	.012	.001
	N	61	61	61	59	61	60	60
Infrastructure	Pearson Correlation	.125	.353	.435	1	.333	.187	.242
	Sig. (2-tailed)	.346	.006	.001		.010	.160	.067
	N	59	59	59	59	59	58	58
Power	Pearson Correlation	.038	-.011	.159	.333	1	.091	.119
	Sig. (2-tailed)	.774	.935	.222	.010		.489	.367
	N	61	61	61	59	61	60	60
CustomerCar	Pearson Correlation	.504	.303	.323	.187	.091	1	.450
	Sig. (2-tailed)	.000	.018	.012	.160	.489		.000
	N	60	60	60	58	60	60	60
ICTskills	Pearson Correlation	.193	.283	.403	.242	.119	.450	1
	Sig. (2-tailed)	.139	.029	.001	.067	.367	.000	
	N	60	60	60	58	60	60	60

5. Conclusions

a)   The Internet comes with all its attending promises and threats to change society. Ghana in anticipation of those promises being fulfilled must embark on structures that will inspire educational institutions and businesses to interconnect.

b) The Internet backbone and bandwidth has to grow and expand from year to year. There is the need for cheaper access to high bandwidth, and price concessions on the Internet in order to enhance scientific and technological development, which will then go a long way to further strengthen the ties between the universities.

c) Building more resilience public-private partnerships are the best solutions for strengthening competitiveness and fostering Internet growth in Africa. And where there are multiple providers there will be many picks for users in accessing the Internet.

d) In order to achieve development goals and foster peace and prosperity for the citizenry, it is crucial for government and regulators to ensure that rural communities, the vulnerable, and the entire country are connected to the digital revolution. Funding for such projects could be made from the Universal Service Funds (USF) – contributions by the communications service providers. Presently, it is estimated that more than US$11 billion for USF remains undisbursed [15].

e) The NCA should implement policy on fair competition and fair access to major infrastructure, and also endeavor to protect consumers from misuse of market power by telecommunications services providers.

f) There is also the need for government and regulators to redress grievances that Internet users see as hindrance to Internet affordability. The ISPs are unable to provide proper quality of service and which is explained by the fact that (a) Internet links break down intermittently, (b) congestion on the network during peak-periods, and (c) prevalent complaint about long waiting times and lead-times to respond to faults.

g) Further studies need to be undertaken to determine (i) whether factors which undermine the growth of Internet connectivity and access, together, predict quality of Internet reliability in the Accra metropolis, (ii) the strength of any model in explaining the variations in the quality of Internet connectivity and access within the Accra metropolis.

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Biography

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