ACCESS TO INTERNET CONNECTIVITY: THE MAJOR BOTTLENECK TO THE ADOPTION OF TECHNOLOGY-ENABLED EDUCATION

R. Okine, A. Agbemenu, J. Marfo

Kwame Nkrumah University of Science and Technology, Ghana

mFriday

Case Study

- KNUST has student-faculty ratio of 42:1

- KNUST desires to fully adopt a Technology-Enabled Education platform to supplement the traditional face-to-face session.

- But this is being impeded by the high cost of internet connectivity which is a critical requirement for e-Learning.

- This paper seeks to delve into the reasons for the high cost of internet connectivity in Ghana and its effects on the adoption of e-Learning platforms

eLearning @ KNUST

- To improve the efficiency and effectiveness of Education

- Desires to fully adopt eLearning platform to supplement face-to-face session.

- Full adoption is impeded by high cost of internet connectivity (both for the University &Learner)

Internet Connectivity

- Access to information is the "life-blood" of the world's knowledge economy, but it is scarcest where it is most needed.

- Few universities in the developing world have access to the internet but its high cost makes it unsustainable.

- Africa most well endowed centers of excellence have less bandwidth than home broadband user in North America or Europe.

- 150Mbps @ $22,500.00 per month

Why high cost of internet connectivity?

- Monopoly on Fixed Broadband.
- Vodafone Ghana Limited acquisition of 70% of shares in Ghana Telecommunication Company.
- Vodafone rather focuses on the lucrative mobile broadband connectivity.
- Vodafone has curtailed, for the time being, at least, the expansion of fixed line broadband.
- Infrastructure is hence concentrated in the urban areas and access to telephones are limited to a few elite.

Table 3-1 Fixed Broadband Internet Rates in Ghana 2013

Monthly Internet Allowance	Monthly Cost in US $[1]
15 Gigabytes	US $33.44
25 Gigabytes	US $51.45
Unlimited for personal use	US $92.62
Unlimited for Office use	US $180.10

Why high cost of internet connectivity?

- High Mobile Broadband Cost

- Majority of internet access is via Mobile Broadband by the MNOs

- Average cost is $ 0.10 per megabyte

- Most subscribers are in the middle or upper class

Table 3-2 Some of the mobile broadband internet rates by some MNOs in Ghana

Mobile Network Operators	Monthly Internet Allowance	Monthly Cost in US $
Vodafone[2]	2.5 Gigabytes	US $15.43
MTN[3]	2.5 Gigabytes	US $20.58
tiGO[4]	3.0 Gigabytes	US $11.57

Why high cost of internet connectivity?

- Less Competition in the submarine fiber-optic cable landing

- Lack of local Content

- High cost of connectivity to consumer's location

- Frequent termination of fibre-optic cables due to improper blue prints used in road construction and sabotage by competition.

- Recovery of initial investments, administrative and maintenance costs by companies and ISPs.

- Frequent power outages, hence high cost of power via generator

The effect of Internet Connectivity on TEE

- Average mobile broadband cost in Ghana is $0.10 per megabyte of data and the average 10minutes video on YouTube is 20MB, bringing the total cost to $2.00 in a country where the minimum daily wage is $2.21

- 70% of students in KNUST do not reside on the University campus

- eLearning could be deployed via an intranet but for a comprehensive deployment, Internet Connectivity becomes the back bone for the delivery of seamless Technology-Enabled Education Platform.

- This high rates deter the academic and research community from accessing global resources. Hence, education becomes a reserved for the privileged in the society.

Conclusion

- Government will have to regulate the industry to make it more competitive.

- Bulk supplier and distributor of internet bandwidth need to split into smaller unrelated companies.

- Until such interventions are brought in, technology-enabled education with its advantages over traditional form of education would never fully be adopted in developing economies like Ghana.

- And access to education will be restrictive.

Recommendations

- Monopoly control of internet access as was done to AT&T by the US government, and licensing charges content.
- Liberalization of the telecom networks and internet service provision as well as lower tariffs on computer and telecom equipment.
- Negotiating for internet bandwidth through economy of scale by a consortium formed by HEIs in the country.
- Higher Educational Institutions need to build database of local contents on a nationwide intranet network so as to avoid the need for constant connectivity to the internet.
- Data centers should be setup within the country to host institutional websites and repositories.
- Content should be less multimedia as much as possible