

# MULTI-DIMENSIONAL INTERNET COVERAGE FOR SUSTAINABLE EDUCATIONAL RESEARCH IN TERTIARY INSTITUTIONS IN DELTA STATE, NIGERIA

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## Abstract

Educational research in tertiary institutions in Delta State, Nigeria, like in some other parts in the world, is hindered by high cost of internet bandwidth and unreliable services of major telecommunications companies, in most areas of the state. A survey was carried out across tertiary institutions in Delta State, which involved researchers in trying to identify challenges associated with internet access for educational research. Problems identified by researchers include poor internet connectivity, quick time-out of access, inconvenience in using hand-held device, absence of wifi device, non-availability of functional e-libraries, irregular power supply, remoteness from telecommunication masts, non-availability of cabled direct access to internet (bandwidth), and clogging of internet super-highway by social media users. This paper provided a sustainable solution to the problems of e-research by designing an implementable, affordable, logistic-oriented, terrain-based infrastructure for enhanced internet connectivity to ease educational research in tertiary institutions.

**Keywords:** Educational research, Internet connectivity, researchers, tertiary institutions, terrain-based infrastructure.

## 1 INTRODUCTION

Educational researches are conducted in tertiary institutions for various purposes, by different members of the academic community, especially academic staff, administration personnel and research students. Educational research is heavily dependent on surfing the internet for information which aid such research efforts, but it faces the challenges of high cost of internet bandwidth and unreliable services provided by major telecommunication companies. In Nigeria internet services are provided through fixed broadband and wireless broadband. Internet World Stats (IWS) stated that as at June, 2015, there were 92,699,924 internet users in Nigeria, that is 51.1% of the population (181,562,056 population according to Census Bureau estimate, June, 2015). With more Nigerians entering the internet usage space, demand for it is outstripping internet coverage and so resulting in unreliable access for educational research in tertiary institutions, especially in Delta State of Nigeria.

Researchers routinely conduct researches that require getting information from the internet, or as part of e-learning. Campbell (2001) defined e-learning as learning which takes place as a result of experiences and interactions within the internet environment. Information is a vital and an indispensable component of any academic environment. Rosenberg (2001) described the importance of information in the context of what he saw as the broadest view of learning. Before the advent of the internet, libraries used to be the main source of information to researchers. We now live in the information age where access to many internet resources is just some clicks away (Kumar, 2015). Sulemani and Katsekpor (2007) and Kumar (2015) opined that in information seeking, today's researchers seem to be more comfortable with using a wide variety of sources of information which include internet search engines, e-print servers, author websites, full-text databases and e-journals. Ejiofor (2009) stated that the utilization of information and communication technology (ICT) in facilitating knowledge acquisition and dissemination within and between various disciplines had been such that human input is reduced to the barest minimum.

Much as internet plays a key role in enhancing research activities, it has been observed that internet coverage in tertiary institutions has not been reliable enough to support unfettered internet usage. Jagboro (2003) had established that the greatest constraint to internet connectivity in the Obafemi Awolowo University, Ile-Ife, Nigeria was the high cost involved, while the associated problems were incessant power failure and the dearth of internet service providers (ISPs). Olabude (2007) also identified initial capital outlay as one of the many constraints that led to poor internet development in Africa.