Journal Homepage: - www.journalijar.com
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)
Article DOI: 10.21474/IJAR01/4819
DOI URL: http://dx.doi.org/10.21474/IJAR01/4819
ISSN NO. 2320-5407

RESEARCH ARTICLE

INFUSION OF TECHNOLOGY INTO THE NIGERIAN SCHOOL SYSTEM.

Hyacinth Anucha.
Senior Partner, RISING PLUS, U.S.A.

Manuscript Info

Manuscript History

Received: 11 May 2017
Final Accepted: 13 June 2017
Published: July 2017

Key words:-
Capacity Building, Leadership, Technology Policy, Education Technology.

Abstract

Effective infusion of computer technology into the education system requires capacity building and national policy that are contextualized in reflective communicative interaction. This paper delineated the Nigerian national policy statements to integrate computer information technology into the school system. Through the study of multiple research perspectives, the article presented significant benefits of infusion of technology into the school system to encourage and enable students amplify their opportunities for life-long learning in the 21st century. The article declared that capacity building and critical national policy are essential for infusion of technology into the education system, and affirmed that the current Nigerian technology policy is weak and insufficient to positively influence technology integration outcomes.

Introduction:-

The legitimacy of the Nigeria's policy to infuse technology into the education system has been the focus of critical discussion by the national, state and local reports, the findings which have forced contemporary educational leaders to reflect not only on educational policy and practice, but on the very nature of their profession. Integration of modern technology into the education system has forced practitioners in Nigeria to analyze and reassess practical approaches that will influence educational policy as we look to the twenty-first century. Currently, it appears that the sterile education system is failing the citizens who must be retrained in computer technology acumen for too few available jobs in the nation (Roberts, 2009). It is time for us to critically re-evaluate diverse perspectives on the content and goals of infusion of computer technology into the education system, with an eye toward inspiring reflective and thoughtful debate on both the current and future state of capacity building and the corresponding policy. There needs to be a turning away from the aloof traditional education system toward a more qualitative, humanistic and technological modes of inquiry that blends technology and effective democratic assumptions and principles (Petrina, 1992).

The Profound Past Assumptions:-

Infusion of computer technology into the education system from the elementary school to the tertiary institutions will undoubtedly improve learning (Tamim, 2011). However, when integrating technology into teaching, we must do well to avoid the traditional errors of the past. In the profound past, Nigeria adopted the European education system that was divorced from essential intrinsic culture and tradition. This has delayed development of theoretical and pedagogical underpinning for effective instruction in the abstruse subjects that are taught in foreign languages.

Corresponding Author:- Hyacinth Anucha.
Address:- Senior Partner, RISING PLUS, U.S.A.

Critical decisions about immersing technology into the education curricula therefore, must consider the cultural heritage; with effective linkages between learning, teaching, knowledge and how these variables need to inform the infusion of technology in a learning environment. Following UNESCO (2014) effective infusion of computer technology into the education system requires operative capacity building and national policy that are contextualized in reflective communicative interaction.

Status of Technology Use in Education in Nigeria:-

The digital divvy between technologically sophisticated and emerging nations, predominantly in Africa is expertly documented. Nigeria is a late comer to technology, and generally, quite too slow to adapt to it. In Nigeria, computer has remained the educational tools of the elite, and unfortunately, there is truncated access to rudimentary computer equipment, little and slow global computer network connection, and little involvement in software knowledge and development (Yusuf, 2005). Both the conflict ridden (Northeastern) parts of the nation and the areas in apparent relative peace, millions of students learn basic computer courses as theoretical information sharing, without a physical computer or computer laboratories. However, in certain private schools, you might have a teacher with one computer for the computer courses in the entire institution. Undeniably, infusion of computer technology into the curricula remains a futuristic prospect for millions of students in Nigeria.

Nonetheless, there exist private computer learning centers as the schools are devoid of computers. In these private computer learning centers, students at various levels of education attend basic computer training sessions for a certain charge. Students have learnt how to use the cellular telephones, manipulate information applications in the cellular telephones, write, send or receive e-mail. Also, students effective use the Facebook and other Applications of the social media. While our students are brilliant, sharp-witted, and appreciate the use of these social media applications they need to have computer technology integrated into their curricula to prepare them for life and proficiency in emerging technology.

Currently, computers are for the privileged, and there is no reason, in fact, that a Nigerian child should not be as well educated as the American elite, considering the actual wealth of the nation. Considerably, private schools are doing better than government schools in the use of computer technology to improve educational outcomes. Moreover, it is discouraging to know that technology education is geared toward sterile information giving and receiving about computer technology. This will induce a crisis in learning and teaching in view of the current, dynamic and emerging global technology revolution.

Benefits of Computer Technology Infusion Into The Education System:-

Research studies have indicated multiple benefits of infusing computer technology into the education system, and the classroom in particular (Bethel and Bernard, 2016; Tamin et al., 2011). These include:

1. Manifold meta-studies testified that students are highly and effectively engaged in their studies and course work when engaged with their individual laptop programs, resulting in superior understanding of the subject matter and higher academic achievement (Morrison et al., 2016).
2. Enhance blended learning prospects and opportunities that incorporate conventional teaching methods and Web-based contents and instruction. Though interaction learning may vary online according to programs and methodology the amalgamation of face-to-face setting and the Web-based learning affords participants the opportunity to remain flexible and diverse. Learners can work at their own leisure and speed, blending the learning procedure and practice that challenge them while keeping them comfortable (U.S. Department of Education, 2017).
3. Increased Productivity: Infusion of technology into the education system enhances educational productivity, quickens the learning rate; increases learning time during non-school hours, reduces instruction material cost, increases accountability and responsibility of both teacher and student (U.S. Department of Education, 2017).
4. Multiple studies have indicated increased proficiency in the use of technology (Zheng, 2016). Also, an effective understanding of computer skills is expected and required of all modern students, and essential for participating as effective contributors to the workforce and society at large.
5. Leadership reported decreased discipline problems with students who are engaged in technology devise assignments and projects. Hence, time and efforts are devoted to learning and instruction to achieve higher academic standards (Morrison et al., 2016).
6. Infusion of technology would empower learners and powerfully transform the instruction processes and products by guiding and ushering an innovative paradigm of connected teaching; linking students and instructors, resources, disciplines, subjects and contents (U.S. Department of Education, 2017).

7. When fully integrated into the school system, technology tools such as computer and hand held devises significantly improve and expand course offerings, improve learners' experiences and flexibility of instruction.
8. Technology infusion will enable abstruse subjects to be taught with arduous practical application (Ronnie, 2015). Science, Mathematics, Computer Technology, Engineering, and Medicine would be taught with perfect examples.
9. Multiple research studies have reported increased individualized instruction and increased learning, in meeting the needs of the students. Hence, teachers can effectively address the specific needs of the learner, customize and modify instructions (Morrison et al., 2016). Hence, superior results can be achieved with the least strain.

Capacity Building:-

Capacity building activities are "sine qua non" for effective infusion of technology into the education system (Ziphorah, 2014). Examples of capacity building activities include establishment of efficient governance systems, personnel or board development, strategic planning and policy development, fund development planning, evaluation of projects and effectiveness of services, technology acquisition and upgrades, stakeholders' management system, assessment of management systems, internal and external communication strategies. Obviously, infusion of computer technology into the education system requires an effective process of developing and strengthening facilities, reflective practices, skills and abilities.

Moreover, leadership must ensure the availability and sustainability of resources and processes that communities and schools need to establish and implement planned systemic infusion of technology activities into education; adapt, survive and thrive in the dynamic global system. Furthermore, technology is changing fast, with new major ones being introduced every six months, while Nigerian school system has been too slow to adapt to the rapidly-changing world. It is imperative therefore, that the Nigerian government needs to make resources available in terms of capacity-building grants to strengthen the schools' governance, infrastructure and management.

Additionally, educational leadership ensures that systemic changes, including massive curriculum revision and teacher preparation considerations are highly incorporated into the technology infusion processes, with improved educational measurable outcomes (Bethel & Bernard, 2016). It is also in the capacity building process that clear articulation and explanation of how current knowledge of effective practices and innovative strategies would be integrated into the design to improve leadership, administration, management, teaching and learning and meet superior academic standards (Cheung & Slavin, 2012). Similarly, building level leadership will also demonstrate significant commitment to the process and provide continuous support for structural and organizational change. Equivalently, adequate resources for personnel and activities would be a shared responsibility at all the levels of the government – national, state and local, to ensure project sustainability. Strategically, institutional leadership must take the lead and model the process.

Institutional leadership commitment to the infusion of technology into the education system also needs to include at the capacity building phase, compelling design for outcome-based evaluation measures with performance feedback for recurrent assessment of progress related to the technology infusion significance, objectives and outcomes. Barber (2011) observed that instructional leadership energies must be expended beyond the managerial and administrative performance and functions; and must include leading and inspiring technology integration, designs, and programs to impact national policy.

Nigerian National Policy Implications:-

Infusion of computer technology into the education system ought to effectively incorporate Praxis (action working with theory), translating theory into arduous practical application to build the competency and professionalism of the school leaders, staff and students in using current and emerging technology. Besides building the capability of school leaders to support systems and high-quality services, national policy needs to ensure sustainability of the computer technology infusion into the school system to achieve superior results for the citizens.

In his analysis, Yusuf (2005) posited that the Nigerian policy on infusion of information technology is weak and inadequate to positively impact the Nigerian education system, and its philosophical framework is driven by the market. Furthermore, he declared that the national policy emphasized diminutive infusion of computer technology and information system in the education system (Yusuf, 2005). Nigeria needs to reassess and revise the technology education policy to ensure effective infusion of technology driven by effective leadership to achieve excellent results in the school system. Ajayi (2002) posited that Nigeria adopted the nationwide policy on telecommunication in

1999. The Nigerian national policy acknowledges the need "To Use Information Technology for education" (Federal Republic of Nigeria (FRN), 2001, p. iii).

Besides, the general objectives declare that information technology will enable the nation to:
xv) empower the youth with information technology skills and prepare them for global competitiveness.
xvi) integrate information technology into the mainstream of education and training.
xxiv) establish new multifaceted Information Technology Institutions as Centers of Excellence to ensure Nigeria's competitiveness in international markets (FRN, 2001, pp. iv – v).

To accomplish these aims the strategy to "Restructure the education system at all levels to respond effectively to the challenges and imagined impact of the information age, and in particular, the allocation of a special information technology development fund to education at all levels" was stipulated (FRN, 2001, p. vi). It was observed, however, that the function of technology in the education system is incorporated into the area of human resources development. Federal Republic of Nigeria (2001, p. 1) delineated the aims of the policy statements with respect to education, including to :

1. develop a pool of information technology engineers, scientists, technicians, and software developers;
2. increase the availability of trained personnel;
3. provide attractive career opportunities; and
4. develop requisite skills in various aspects of information technology.

Furthermore, to accomplish these aims to effectively develop human resources, various strategies directed at the knowledge building, aptitudes and competency development in information technology were delineated. These strategies comprise of:

1. making the use of Information Communication Technology mandatory at all levels of educational institutions;
2. development of Information Communication Technology curricular for primary, secondary, and tertiary institutions;
3. use of Information Communication Technology in distance education;
4. Information Communication Technology companies' investment in education;
5. study grant and scholarship on Information Communication Technology;
6. training the trainer scheme for National Youth Service Corp members to advance Information Technology capacity building;
7. Information Communication Technology capacity development at zonal, state, and local levels;
8. growth of private and public sector-dedicated Information Communication Technology primary, secondary, and tertiary educational institutions; and
9. working with international and domestic initiatives for transfer of Information Communication Technology knowledge (FRN, 2001, pp.1-2). In spite of these objectives and strategies that are focused on education, the document is inadequate to cater for the needs of the country's education system (Yusuf, 2005).

Restructuring an education system goes beyond policy initiatives. In the Nigerian setting, educational leaders, teachers, students and school leadership are only existentially groomed to assimilate knowledge, proficiencies and skills for potential career responsibilities. At the primary and secondary schools, computer technology focuses on information about technology, usually accomplished with one course work; while at the tertiary institutions and teacher preparatory schools, the emphases are on information about computer technology usage. It was observed that the policy emphasizes theoretical knowledge about computer technology application and does not pragmatically infuse technology into the education system to address challenges in teaching and learning to improving quality standards. This is the same news in most African nations.

Matinde (2016) declared that some African nations are investing in computer technology education that would enable students gain access to E-learning, in an unprecedented way. Rather than developing and connecting schools to the national power grid and extend internet access to her citizens, Nigeria is contracting foreign e-learning firms to extend their opportunities to the citizens. Moreover, Nigeria can contract technology manufacturing firms, such as Microsoft, Intel, and Samsung to help the nation develop the education segment by manufacturing technology devices for the 21st Century education system, including blended learning. This will enable Nigeria to transform from oil resource based-economy to technology information and knowledge-based economy. However, it will require effective pragmatic policy statements and leaders in the education system to compel the government to provide funding for technology infusion into the education system. Administrators must engage the diverse

stakeholders to provide platforms to transform the education process into effective digital learning, while encouraging one laptop device for each student.

Conclusion:-

Research studies revealed significant benefits of the infusion of computer technology into the education system. With value-added and innovative strategies, in addition to enhanced cultural considerations and current knowledge of best practices, Nigeria should expect superior results that would improve teaching and learning, and meet high academic standards. However, it is clear that institutional leaders will demonstrate significant commitment and provide sustained support for systemic change that would include effective capacity building and innovative national policy in the infusion of technology into the school system. Hence, it will encourage design, development and implementation of multimedia teaching and learning devices that will inspire and motivate students to take responsibility to amplify their opportunities for life-long learning in the 21st century.

References:-

1. Ajayi, G.O. (2002). African response to the Information Communication Technology revolution. ATPS Special Paper No. 8 [Online]. http://www.atpsnet.org/docs/Ajayi.pdf.
2. Barber, B. (2011). Faculty leadership and instructional technologies: Who decides? New Directions for Community Colleges, (154), 73-85.
3. Bethel, E., & Bernard, R. M. (2016). A Meta-analysis of one-to-one access to laptop computing in K-12 classrooms. Manuscript submitted for publication.
4. Cheung, A. C. K., & Slavin, R. E. (2012). The effectiveness of educational technology applications for enhancing reading achievement in k-12 classrooms: A meta-analysis. Best Evidence Encyclopedia. Retrieved from http://www.bestevidence.org/word/tech_read_April_25_2012.pdf.
5. Federal Republic of Nigeria. (2001). Nigeria National Policy for Information Technology (IT). Retrieved from http://unpan1.un.org/intradoc/groups/public/ documents/unpan/unpan032693.pdf (Accessed July 8, 2017).
6. Grady, M. (2011). The Principal's Role as Technology Leader. Retrieved from http://www.seenmagazine.us/Article-Detail/articleid/1800/the-principal-8217-s- role-as-technology leader.
7. Jones, Ronnie. (2015). Technology Integration and Higher Education. Retrieved from https://www.linkedin.com/pulse/technology-integration-higher-education-ronnie-jones.
8. 8. Matinde, V. (2016). Five African countries changing the education sector through tech. Retrieved from http://www.idgconnect.com/abstract/22779/five-african-countries-changing- education-sector-tech
9. Morrison, G. R., Morrison, J. R., & Ross, S. M.(2016). A Review of the Research Literature on the Infusion of Technology into the School Curriculum. Retrieved from http://education.jhu.edu/research/crre/_object_
10. Petrina, Stephen. (1992). Curriculum Change in Technology Education: A Theoretical Perspective on Personal Relevance Curriculum Designs. Journal of Technology Education – 3(2).
11. Roberts, Kofi. (2009). The Sargasso Bridge: America Speaks, Africa Answers. New York: Universe INC.
12. Starr, L. (2009). Education World: The Administrator's Role in Technology Integration. Retrieved from www.educationworld.com
13. Tamim, R. M., Bernard, R. M., Borokhovski, E., Abrami, P. C., & Schmid, R. F. (2011). What forty years of research says about the impact of technology on learning: A second-order meta-analysis and validation study. Review of Educational Research, 81(1), 4-28. doi: 10.3102/0034654310393361.
14. UNESCO. (2014). Quality Teachers For EFA: Capacity Development for Quality in Pre and Lower Primary Teacher Education in Namibia. Retrieved from http://www.unesco.org/ fileadmin/ Multimedia/ Field/Harare/ pdf /PhaseI_2014.pdf.
15. U.S. Department of Education. (2017). Retrieved from https://www.ed.gov/oii-news/use- technology-teaching-and-learning.
16. Yusuf, M. O. (2005). Information and Communication Technology and Education: Analysing the Nigerian National Policy for Information Technology. International Education Journal, v6 n3 p316-321 Jul 2005.
17. Ziphorah, Ramorola Mmankoko. (2014). Information and communication technology integration: Where to start, infrastructure or capacity building? Procedia - Social and Behavioral Sciences (116) 3649 – 3658.
18. Zheng, B., Warschauer, M., Lin, C., & Chang, C. (2016). Learning in one-to-one laptop environments: A meta-analysis and research synthesis. Review of Educational Research. doi:10.3102/0034654316628645.