Information Service Provision for the Sustainance of the 21st Century Educational Development in Nigeria

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Abstract

The increasing importance of knowledge as a driver of economic growth; the information and communication revolution; the advent of worldwide labour market and global socio-political transformations have today brought about a paradigm shift in human capital development in nations of the world. Conceiving and achieving a national aspiration and strategic planning in human resource development is undoubtedly essential to all forms of investment in education which, Nigeria, like most other developing economies are looking forward to. In doing so, Nigeria is also deemed capable of becoming a contributor to scientific and technological advancement. This paper examines the roles played by our educational institutions through provision of relevant information that supports the education for the contemporary sophisticated information society. Libraries and information centers in our institution of learning should address digital literacy, which, some school of thoughts now see as the secret sauce. The paper recommends relevant information provision in our present educational system as this aims at bringing in today's world for the student because of the flexibility that comes with the contemporary learning through digital objects; Social media tools-use should be highly encouraged as they provide a fast means of information sharing between information stakeholders in our educational community; It also recommends an urgent need for eventual update of the education curriculum to integrate the connections prevalent in the digital world.

Keywords: Educational development, Information provision, service and sustenance

Introduction

In line with the Nigerian National Education philosophy, the Nigerian Education Research and Development Council formulated the vision to build and sustain a culture of strategic educational research and development that will inform the formulation and effective implementation of policies in education as well as in other related sectors of the economy. Similarly, its mission is stated in terms of creating the enabling environment in which educational research and development activities will thrive and in the process not only encourage collaboration with international development partners but also foster public private partnership in our bid to render educational research and development efforts sustainable and needs driven. Thus, a strong educational foundation will enhance strong human resource development and capacity building to drive the wheels of progress of the country.

Igun (2006) defined human capital as the total stock of knowledge, skills, competencies, and innovative abilities possessed by the population. Among the most important changes that characterize the 21st century are, "the increasing importance of knowledge as a driver of economic growth; the information and communication revolution; the advent of a worldwide labour market and global socio-political transformations" (World Bank 2002).Human capital development has become a core element in the development efforts of developing countries and in the knowledge society of the 21st century. This is because, "comparative advantage among nations derive less and less from natural resources and cheap labour endowment and increasingly from technical innovations and the competitive use of knowledge" (World Bank 2002:8). In the new environment, the learning paradigm has changed. The new paradigm is lifelong learning, in which there is less emphasis on remembering facts and basic data, and more emphasis on process, analytical knowledge, skills, and competences. The emphasis is "learning to learn; learning to transform information into new knowledge; and learning to translate new knowledge into applications,"

(World Bank, 2002:29). In this new paradigm, cooperative education is central. Periods of institution-based learning produce the foundation of knowledge, and the acquisition of work-related skills, competences, and practices in relevant workplaces build on this foundation. The training of librarian for the 21st century must follow this paradigm.

Knowledge has become the most important factor for economic development in the 21st century. Through its capacity to augment productivity, it increasingly constitutes the foundation of a country's competitive advantage (PORTER 1990). This change is most evident in OECD countries, where investments in the intangibles that make up the knowledge base of a country (e.g., research and development, higher education, computer software, patents etc.,) are equaling or even exceeding investments in physical equipment (OECD 2001). Developing economies, while affected by these transformations, are not yet reaping their benefits. This is because the capacity to generate and harness knowledge in the pursuit of sustainable development and improved living standards is not spread equally among nations

The 21ˢᵗ Century Educational Experience

The current information landscape has introduced radical changes in which information is created, transmitted, stored, retrieved and used. Technologies can enhance instruction and assist in selecting the most appropriate educational technologies for instructional needs. Turiman et al 2012 citing (NCREL & Metiri Group, 2003; Nur Aishah et al;, 2009 : Executive Summary of the Plan-10, 2010) surmised that the 21st century offers life in a borderless world, globalization, internationalization and the explosion of information and communication technology (ICT). PIPP (2006) support the rapid development of technology and information dissemination to result in the expansion of knowledge that will impact the economy, culture and politics of a country. Current explosion of information and technology and knowledge-based economy have changed the implementation of the education system. The era of digital economy requires a workforce that is knowledgeable and skilled to generate innovation and improve productivity of a country. Thus, this 21st century students need to be able to solve various problems by thinking creatively and the use of technology. The education sector is thus undergoing a paradigm shift in which learning should be changed from horizontal to loop of knowledge that combines knowledge, application and continuous contribution (Kamisah & Neelavany, 2010).

21ˢᵗ Century Skills

NCREL and Metiri Group (2003) have identified the 21st century skills which need to be acquired by future generation in order to meet the challenges of globalization due to the advancement of information and technology. There are four main domains specified in the 21st century skills namely digital age literacy, inventive thinking, effective communication and high productivity. The digital-age literacy skills in accordance NCREL (2003) consist of basic literacy, scientific literacy, economic literacy, technological literacy, visual literacy, information literacy and multicultural literacy. Basic literacy means language proficiency (in English) and numeracy at levels necessary to function on the job and in society to achieve one's goals, and develop one's knowledge and potential in this digital age. Scientific literacy means knowledge and understanding of the scientific concepts and processes required for personal decision-making, participation in civic and cultural affairs, and economic productivity. Economic literacy means the ability to identify economic problem, alternatives, costs and benefits; analyze the incentives at work in economic situations; examine the consequences of changes in economic conditions and public policies; collect and organize economic evidence; and weigh costs against benefits (NCREL and Metiri Group, 2003).Technological literacy means knowledge about what technology is, how it works, what purposes it can serve, and how it can be used efficiently and effectively to achieve specific goals. Visual literacy means the ability to interpret, use, appreciate, and create images and video using both conventional and 21st century media in ways that advance thinking, decision-making, communication, and learning. Information literacy means the ability to evaluate information across a range of media; recognize when information is needed; locate, synthesize, and use information effectively; and accomplish these functions using technology, communication networks, and electronic resources. Multicultural literacy means the ability to understand and appreciate the similarities and differences in the customs, values, and beliefs of one's own culture and the cultures of others whereas global awareness means the recognition and understanding of interrelationships among international organizations, nation-states, public and private economic entities, socio-cultural groups, and individuals across the globe (NCREL and Metiri Group, 2003).

Inventive thinking comprises of adaptability/managing complexity, self direction, curiosity, creativity, risk taking and higher-order thinking and sound reasoning. Adaptability/managing complexity is the ability to modify one's thinking, attitude, or behavior to be better suited to current or future environment as well as the ability to handle multiple goals, tasks, and inputs, while understanding and adhering to constraints of time, resources, and systems (e.g., organizational, technological). Self-direction is the ability to set goals related to learning, plan for the achievement of those goals, independently manage time and effort, and independently assess the quality of learning and any products that result from the learning experience. Curiosity is the desire to know or a spark of interest that leads to inquiry. Creativity is the act of bringing something into existence that is genuinely new and original, whether personally (original only to the individual) or culturally (where the work adds significantly to a domain. of culture as recognized by experts). Risk-taking is the willingness to make mistakes, advocate unconventional or unpopular positions, or tackle extremely challenging problems without obvious solutions, such that one's personal growth, integrity, or accomplishments are enhanced. Higher-order thinking and sound reasoning include the cognitive processes of analysis, comparison, inference/interpretation, evaluation, and synthesis applied to a range of academic domains and problem-solving contexts (NCREL and Metiri Group, 2003).Effective communication involves five components which are teaming and collaboration, interpersonal skills, personal responsibilities, social and civic responsibilities and interactive communication. Teaming and collaboration means cooperative interaction between two or more individuals that working together to solve problems, create novel products, or learn and master content. Interpersonal skills mean the ability to read and manage the emotions, motivations, and behaviors of oneself and others during social interactions or in a social-interactive context. Personal responsibility is depth and currency of knowledge about legal and ethical issues related to technology, combined with one's ability to apply this knowledge to achieve balance, integrity, and quality of life as a citizen, a family and community member, a learner, and a worker. Social and civic responsibility is the ability to manage technology and govern its use in a way that promotes public good and protects society, the environment, and democratic ideals. Interactive communication means the generation of meaning through exchanges using a range of contemporary tools, transmissions, and processes (NCREL and Metiri Group, 2003).

Education and National Development

High productivity consists of prioritizing, planning, and managing for results, effective use of real-world tools and ability to produce relevant, high-quality products. Prioritizing, planning, and managing for results are the ability to organize and efficiently achieve the goals of a specific project or problem. Effective use of real-world tools includes the use of the following – the hardware, software, networking, and peripheral devices used by Information Technology (IT) workers to accomplish 21st century work. It means using these tools to communicate, collaborate, solve problems, and accomplish tasks. Ability to produce relevant, high-quality products is intellectual, informational, or material products that serve authentic purposes and occur as a result of students using real-world tools to solve or communicate about real-world problems. These products include persuasive communications in any media (print, video, the web, verbal presentation), synthesis of resources into more useable forms (databases, graphics, simulations), or refinement of questions that build upon what is known to advance one's own and others understanding (NCREL and Metiri Group, 2003).

Information Provision in Support of 21st Century Education for National Development

Libraries have existed since approximately 2600 BCE as an archive of recorded knowledge. From tablets and scrolls to bound books, they have cataloged resources and served as a locus of knowledge. Today, with the digitization of content and the ubiquity of the Internet, information is no longer confined to printed materials accessible only in a single, physical location. Consider this: Project Gutenberg and its affiliates make over 100,000 public domain works available digitally, and Google has scanned over 30 million books through its library project. Libraries are reinventing themselves as content becomes more accessible online and their role becomes less about housing tomes and more about connecting learners and constructing knowledge. Cushing Academy in Ashburnham, Massachusetts has been in the vanguard of this transition since 2009, when it announced its plans for a "bookless" library. A database of millions of digital resources superseded their 20,000-volume collection of books, and a café replaced the circulation desk. With this transition, not only did the way in which students consumed content change, but also how they utilized the library space. Rather than maintain a quiet location for individual study, the school wanted to create an environment for "collaboration and knowledge co-construction."

Perhaps the greatest example of vision and focus in automation over the past quarter century was the development of and rise of Machine Readable Cataloguing, MARC format. The developers of MARC recognized the need to communicate the bibliographic information that a format for doing so is to have standards in communication. The MARC format is highly flexible and amenable to change. The MARC format was created in a world where librarians had to generate cataloguing information and the standards provide a finding tool for the library collection (Tiwari, 2010). The use of such standards allow for metadata harvesting to fast track access to information resources.

From Library to Learning Commons Services

Printed books still play a critical role in supporting learners, but digital technologies offer additional pathways to learning and content acquisition. Students and teachers no longer need a library simply for access. Instead, they require a place that encourages participatory learning and allows for co-construction of understanding from a variety of sources. In other words, instead of being an archive, libraries are becoming a learning commons. The design and implementation of the new library at Chicago's Francis W. Parker School epitomizes this concept as they transformed their traditional space with its cubicles and stacks (which essentially thwarted collaboration) into one that fostered learning and communication. To meet the needs of their teachers and learners, they constructed a flexible space with moveable chairs, desks, and even bookshelves. Small rooms can be opened up to allow for group projects, and the circulation desk as well as the sides of the stacks is writeable with dry-erase markers to encourage the collaboration and sharing that the previous space had discouraged. In its present attempt for Kashim Ibrahim Library, Ahmadu Bello University, Zaria to reposition itself, it is currently in high gear in the building a learning Commons digital environment for its growing customers

Digital Learning Materials (DLMs) Services

Digital learning materials have today become instruments for enhancing student learning. According to Shank and Bell(2009), these are web based resources that can be utilized for instructional purposes , are part of the next generation of digital information formats that can be used to augment the instructional process and improve student learning. Blended librarians can use DLMs to improve their instruction sessions, as well as assist lecturers in locating and utilizing these digital resources. DLMs include "learning objects," "Instructional objects," education objects," and "knowledge objects." The information elements that make up digital learning materials include text, graphics, animation, audio, and video. They come in numerous format flavors such as HTML, FLASH, AVL, WMV, MP3 JPEG, and TIFF etc. (Shank and Bell, 2009). They also take various forms, including tutorials, simulations, demonstrations, exercise, online models, games, experiments, and case studies.. What sets them apart from more traditional formats, such as monographs, periodicals, and conventional media(TV, film, photos, and overhead projectors), is that DLMs include both active-learning and assessment components that promote student learning.

## Advantages of Using Digital Learning Materials

Digital learning resources allow students to more effectively match their ideal learning style through interaction with content in various modes, for example, DLMs incorporate audio and visual content which might be the primary way students can succeed in learning. Secondly, students can practice with DLMs both inside and outside the classroom, multiple times, and at their own pace. Students also receive immediate feedback from DLMs. This testing of their knowledge help provide them with guidance and direction in learning new skills.

Transparent Learning Hubs Services

The contemporary library set up across the world today is to provide a space where people would get together from different backgrounds, different fields of expertise, and share. The library as a campfire space where students could gather; a collaborative space where they could work together in small groups; a transparent space where learning could be seen through the windows, a more barrier-free space in terms of student use, and an innovative space where the design would reflect the innovations that are going on inside our campus. In other words, learning hub for the school community would encourage teachers and students to collaborate, communicate, and share. To achieve that goal, many libraries now includes glass walls, making the space literally transparent, as well as an outdoor area.

Extending the Physical with Digital

Too often, the debate about the future of library and information services centers on paper vs. eBooks or physical vs. digital. Instead of looking at technology as supplanting the traditional, we could explore the ways in which it enhances the traditional. Paul Hamilton from Sunshine Coast, Australia, uses a combination of paper, books, whiteboard paint, iPads, and augmented reality to create custom learning environments for his students. He wants them to interact with the content, the technology, the space, and each other in order to gain context and increase their knowledge.
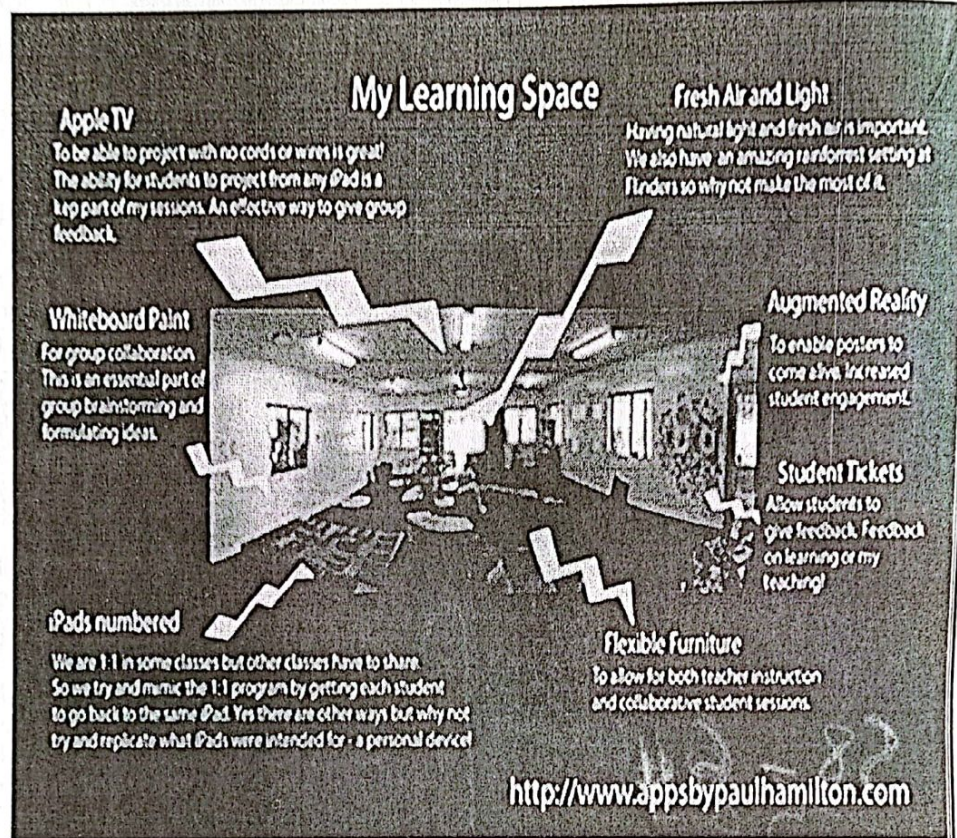
When the Stephen Perse Foundation in the U.K. opened their new library, the guest speaker described it as **quaquaversal**, meaning "directed outward to every point of the compass from a common center." Not only does the space embrace the concept of a learning commons, it also thoughtfully merges the best of the physical and digital worlds. While the space does include paper books and physical artifacts, as well as flexible furniture and an open environment, digital content encourages students to explore, play, and delve deeper into subjects they may not otherwise experience.

How to Sustain the Current technology for Educational Development

The plans for incorporating new technology into a school instructional and/ or administrative program sometimes fail to include equipment, applications and professional development. Buying hardware is usually the essential part of implementing technology program, but once the hardware is purchased, how do we ensure that instructors have access to the right technology and the skills to use it? And how can institutions sustainably afford to implement these technology programs? The key to a successful program is navigating tight economic conditions for the initial purchase and then maintaining your assets and infrastructure, refreshing them as technology changes. Several important things to consider when purchasing equipment and infrastructure include the following:

(a)   Buy enough equipment to meet your objectives.
(b)   Consider buying refurbished equipment as they cost less and has a warranty similar to exactly like one for original equipment
(c)   Buy equipment that has limited memory and use the cloud for storage, giving each student adequate storage capacity for their work, research and artifacts without expensive hardware.

(d) Always purchase using the government pricing available from the manufacturers unless you can find something even less expensive.

(e) Build in the cost for professional development, as the most important way to improve education is to improve the quality of teachers

Recommendations

- **Libraries** and information centers in our institution of learning should address digital literacy, which, some school of thoughts now see as the secret sauce: It's bringing in today's world for the student because of the flexibility that comes with the contemporary learning through digital objects.

- Social media tools-use should be highly encouraged as they provide a fast means of information sharing between information stakeholders in our educational community.

- *There is urgent need for* eventual update of the education curriculum to integrate the connections prevalent in the digital world. This will help reinforce the lessons.

- *There should be* collaboration to provide access to databases between institutions and other bibliographic utilities available online and their e-books records, their music records, and entire databases.

Conclusion

The Future of Libraries as it appears now indicate that when every student has the potential to carry a global library on the device in his or her pocket, the role of physical libraries may become even more important, not just a place to house resources, but one in which to create meaning from them. The libraries of the 21st century provide a welcoming common space that encourages exploration, creation, and collaboration between students, teachers, and a broader community. They bring together the best of the physical and digital to create learning hubs. Ultimately, libraries will continue to inspire students to construct new knowledge and meaning from the world around them and thus improving the general education in Nigeria thus catapulting human resource development to where it belongs in the 21ˢᵗ century. It is indeed, the total stock of knowledge, skills, competencies, and innovative abilities possessed by the population. And among the most important changes that characterize the 21st century are, "the increasing importance of knowledge as a driver of economic growth; the information and communication revolution; the advent of a worldwide labor market and global socio-political transformations

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