

OFFICE VIRTUALIZATION: CRITICAL FOR OFFICE OF TODAY AND FUTURE**¹Akpelu, Frankline Ekwueme Ph.D and ²Onyesom, Anthonia Ewere****¹Department of Educational Management, ²Ph.D Student, Department of Business Education, ^{1&2}Faculty of Education, Ignatius Ajuru University of Education, Port-Harcourt, Rivers State, Nigeria****ABSTRACT**

This paper focuses mainly on office virtualization. Virtualization is a way of running virtual computer systems on a single physical computer. The study further empirically looked at the benefits of virtualization, it's relatedness to office; present and future and its impacts in educational sector especially in education (Business education). The study conclusively stated that technology has rapidly advanced to the point of having most of the jobs done digitally that it threatens the employment of people who are not literate on technological advancements. Based on the study gathered, the following recommendations were made; Organizations including the educational sectors should include in its learning and development intervention plans a continuous series of training for its employees for every update or advancement that technology undergo among others.

Keywords: Virtualization, Office, Technology, Education, Workplace

INTRODUCTION

Since the inception of information communication technologies, there have been a tremendous growth in all sectors. Information communication technology started to influence various areas of life, and digital technology start to become a tool which is often used in everyday schedule. This happens not only for IT professionals, but also with ordinary people. At present, every area of life can be supported with digital tools, whether it is electronic banking, shopping, learning of foreign languages, communication with other human beings or booking various services such as flights or hotels (Andrzej, 2012). For such operations usually, only the digital technologies with internet access are needed. And this is made possible through effective virtualization.

Virtualization is a way of running virtual computer systems on a single physical computer. At present, virtualization is a ripe technique supported in the major CPU designs as well as the necessary virtualization software, and is already an inextricable part of production environments. With that, computer virtualization ought to become an integral part of the education (Business education inclusive).

Virtual teaching is education that takes place over the internet. It is often referred to as "e-learning". The etymological definition of the word virtual teaching is described in Ostankowicz-Bazan (2016) as an innovative approach to deliver instruction to audience, using the Web as the medium. The discourse on virtual teaching has attracted a growing number of scholars who have attempted to explain the indispensability in the teaching and learning of business education. According to Gana and Abdulrahman (2017), business education is a wide field of discipline, which prepares individual with relevant and saleable skills for self and societal development. Ozuruoke and Abdulkarim (2016) defined Business education as education designed to equipped recipients with knowledge, skills and experiences for proper understanding of the economic opportunities around and how to take advantage of such as producers of goods and services, as well as rational and intelligent consumers of the products or services of others in the absence of teaching opportunities. Usoro (2016) defined Business Education as that aspect of vocational education which is designed in addition to general education to prepare recipients for and about business as well as to equip them with the technique of teaching business courses.

Amoor (2010) noted that Business Education plays a significant role in economic development by providing knowledge and skills to learners, thereby, enabling them to adequately

impart knowledge into others, and handle sophisticated office technologies and information systems.

Goals of virtualization

Organizations are often seeking different things when using virtualization technology. An organization's virtualization goals according to Kusnetzky (2011) include the following:

- Allowing any network-enabled device to access any network-accessible application over any network, even if that application was never designed to work with that type of device
- Isolation of one workload or application from another to enhance security or manageability of the environment
- Isolation of an application from the operating system, allowing an application to continue to function even though it was designed for a different version of the operating system
- Isolation of an application from the operating system, allowing an application to function on a foreign operating system
- Increasing the number of people that an application can support, by allowing multiple instances to run on different machines simultaneously
- Decreasing the time it takes for an application to run, by segmenting either the data or the application itself and spreading the work over many systems
- Optimizing the use of a single system, allowing it to work harder and more intelligently (that is, reducing the amount of time the processor sits idle)
- Increasing the reliability or availability of an application or workload through redundancy (if any single component fails, this virtualization technology either moves the application to a surviving system or restarts a function on a surviving system)

Concept of Office Virtualization

A virtual office gives businesses a physical address and office-related services without the overhead of a long lease and administrative staff. With a virtual office, employees can work from anywhere but still have things like a mailing address, phone answering services, meeting rooms and videoconferencing. A virtual office is a service that enables employees and business owners to work remotely by providing a range of business functions accessible through the internet.

Virtual office services started in the 1960s as serviced offices and have evolved with technology to include a wide variety of personnel, physical space, digital storage and communication services. (Ahmad, 2014).

Types of Office Virtualization

The use of virtualization technology in education (or in school conditions) is still a relatively unexplored area. Despite the few literary sources partially dealing with this issue, we are not aware of the existence of an overview study striving to systematize possibilities and ways to employ this progressive technology within the framework of the process of education (Fitzpatrick, 2013). Upon an analysis of the existing available information sources, there are three types of office virtualization. They include;

Full Virtualization: An almost perfect simulation of the real hardware, which enables applications dependent on the Operating System of Virtual Machine to run without any necessary modifications.

Partial Virtualization: Only a part of the target environment is simulated. Some of the applications have to be modified before being operated on this type of Virtual Machine.

Para-Virtualization: Hardware not simulated at all. However, the applications are launched in separate, isolated areas as if they ran on a separate system.

Virtualization as related to Education

Virtual learning environments have been associated with formal learning and with relationships between teachers, students and school. There is an increasing interest in the virtual

learning environments supported by the internet, mainly among educational institutions, students and teachers. The concept of virtual learning environment (VLE) could be considered as a dynamic concept due to the constant evolution of digital technologies, to its features and potentialities, and to the importance that such environments have within the learning processes.

Educational systems based on the web are being used by an increasing number of universities, schools and companies, not only to incorporate web technology into their courses, but also to complement their traditional face-to-face courses. These systems gather a great quantity of data which is valuable to analyse the course contents and students' use (Valsamidisa, Kazanidisa, Petasakisa, Kontogiannisb, & Kolokithaa, 2014). Learning environments based on the use of technology and digital resources are mediators in the learning process through the activities they allow. This is due to the fact that they facilitate interaction and interrelation within a continuous communication process, thus enhancing the construction and reconstruction of knowledge and meanings as well as the formation of habits and attitudes within a framework that is common to all the ones involved in the educational process [Becerra, García, & Chávez, 2011].

The use of VLEs within each context implies the acknowledgment of their main features and potentialities. Learning environments and contexts are dynamic and multidimensional concepts which emerge from the new educational conceptions and practices in the digital society. In the view of Morais, Alves and Miranda (2013), the main potentiality of VLEs is the provision of a set of tools aiming to support the production and distribution of contents, communication, and the assessment of the teaching and learning process.

Bearing in mind the highlighted features, the concept of virtual learning environment involves several dimensions. The most relevant ones are associated with virtual space, time, resources, and strategies. VLEs provide institutions with great quantities of information and the possibility to manage it and provide it to their members in a simple way and with a guarantee of quality and validity.

The features and potentialities of VLEs turn them into spaces which allow the testing, promotion and support of new highly planned and directed teaching and learning strategies. The observation of a constant dynamism is advisable in the use of the resources and in the changes witnessed around such resources, as this will allow them to be considered as a context for the building of learning processes (Zitter, Bruijn, Simons & Cate, 2011).

From a pedagogical perspective, the VLEs used in educational institutions originates advance and boosts innovative experiences. However, they are mainly directed towards the production and distribution of contents. These environments typically replicate traditional teaching through the online distribution of contents, messages and notices, and online communication through discussion forums and chats.

Virtual learning environments have had great relevance in the support and promotion of formal education, since it is in formal education institutions that the educational guidelines and curricula of each country are implemented. However, within a perspective of change and innovation, VLEs may play a paramount role in supporting learning in non-formal and informal contexts. The concept of Innovation, which is used in current society, implies a need for change or renovation, or a need for doing something new.

Virtualization as Critical for Today Office and Future

Virtual office influences the design of the organization at work. Among technological updates, the internet has the most significant impact on the design of office work. With the use of internet, e-businesses were born, and these businesses focus on design as they adapt to the dynamism of the internet environment (Ahmad, 2014). The internet also paved the way for the creation of virtual offices. Through the emergences of the virtual design of office, technology has helped shape the lines between home and work (Ahmad, 2014). Through the internet used in personal computers, iPod and smart-phones, people can work in virtual offices right from the

comforts of their homes. This means that the design of work transformed into digital such that the contents, methods and relationships of jobs satisfied technological requirements.

The use of virtual equipment influences the structures of work in an organization. According to Jones (2010), the skills, systems, and procedures involving technology efficiently handle environmental factors at the input stage. From input to conversion to output, virtual simultaneously improve the quality and services, overall efficiency and reduces cost at every level of the process (Jake, 2011). The introduction of new technologies in office workplace modified the content of jobs. There had been less demand for jobs that entail manual dexterity, physical strength for materials handling and for traditional craftsmanship (Mark, 1987). The manual tasks are replaced by computer-process control, advanced material handling equipment, and other innovations. Because of these changes in the structure of work, the workers' job is just to operate and monitor technologies being used.

Among the latest virtual that is deemed useful in office work environment are the automation and information technology (Ahmad, 2014). Some of the information or communication technologies worth adopting are Desktop Video Chat, Video Conferencing and Online Visual Collaboration tools (Ahmad, 2014). Telephone communications and computer-process control are among the technologies that involved the most rapid changes. Some more modern office technological gadgets include smart-phones, faster windows operating system like Windows 7 and 8, Laptops and tablets. These technologies can help boost the service of companies. These modern technologies incorporate powerful and low-cost microelectronics devices that are capable of increasing productivity in the offices when efficiently used by the employees.

Benefit of Office virtualization

Work Flexibility: Virtual has a direct impact on work performance. Pfano (2016) emphasized that having advanced office technologies increases the work performance of managers because technologies make works a lot more flexible. Modern technology is often used to contain and organize valuable information about the company hence it has to be managed carefully. To effect increased performance, technology has to be relevant and appropriate

Mobility Saves Time: Another feature of technology that enables the attainment of increased productivity and profitability in businesses is mobility. Unlike the desktop computer in the past decades, the latest personal computers and mobile technologies like mobile phones, laptops and tablets can be brought by workers anywhere they like to work at any times. The managers, for instance, can do business task at home anytime. They can reply and send emails whenever they want to.

Mobile technologies in modern offices are beneficial in the areas of networking/communication and marketing. Using mobile technologies like smartphones and tablets, the managers, employees and customers can smoothly interact and connect with each other through social media application like LinkedIn, Facebook, Skype and Twitter. This very accessible mode of communication benefits offices regarding efficient use of staff time, improved customer service, and a more excellent range of products and service delivered (Pfano & Beharry, 2016).

Save Valuable Resources/Reduces Cost: Offices now are involved in work that transcends beyond the four corners of the room due to globalization. Many businesses extend its market globally. Technology is of optimum use and helps for offices that deal with global transactions because technology makes global communication happen. Before the discovery of telephones and internet, the humanity relies on business letters for communication purposes. Now, the usual printed or typewritten business letters are all made electronic. Managers don't have to travel across countries to supervise its businesses and meet stakeholders. The great use to technology comes into play in today's global business set up. Technology help save valuable resources like time and money in this aspect

Improves Work Performance: In this study conducted by Pfano and Beharry (2016), the analysis of the data concerning manager's use of virtual in offices and the employees' perception on the importance of technology in the workplace revealed significant findings. The table below summarizes the results of the study among the respondents from 67 businesses considered in the study. This recent study by Pfano and Beharry (2016) gives significant findings that can be very relevant in the adoption of technology in offices. This finding emphasizes that people of age 35 and above are already proficient in the use of technology in office work since 90% of the managers are revealed to be using technology while only 80% are of age of above 35. This means that all of those of age above 35 are equipped with skills for using virtual equipment.

Theory related to Office Virtualization

Based on the concept under review, the process theory was considered important for this paper.

The Process theory by *Eric Overby (2008)*

The process virtualization theory describes how task can be conducted without manual interaction. It also explains how the factors influence the virtualization of the process. Few virtualized processes are completely accepted by society like distance learning and online banking (Moore & Kearsley 1996). But online shopping is been accepted to some extent. For example to buy perfumes online is not sensible Davenport and Beers (1995, p. 57).

The main factors which decide the virtualization of physical process are:

- (1) Sensory requirement
- (2) Relationship requirement
- (3) Synchronism requirement and
- (4) Identification and control requirement.

These factors play major role in judging whether the process is befitted to be virtualized from manual dealt process. As earlier stated the degree of each requirement should be low to be successfully converting the process into virtual process. But this certainly doesn't mean that if the degree of the requirement is low then process cannot be virtualized. Indeed, the factors draw a conclusion that these requirements are solely responsible to interpret the how supremely the process can be virtualized.

Main components of Process virtualization theory are given below;

(1) Sensory Requirements

The foremost requirement of process virtualization is sensory requirement. This component helps to provide total functionality of the human sensing like taste touch smell etc. Proposition S1 can be stated as, higher the value of sensory requirement, less favorable is the process virtualization.

(2) Relationship Requirements

The second component in the process of virtualization is relationship requirement which is help in interaction with one another in society. As the proposition S2 can be defined as, higher the value of relationship requirement, less favorable is the process virtualization.

(3) Synchronism requirements

The third most component in the required in the process of virtualization is synchronism requirements. It quotes that the quantity of the activities for process has quick occurrence with optimal delay.

(4) Control and Identification Requirements

The forth component to enhance the process virtualization is identification and control requirements which can be stated as to have unique identification for process. The proposition for control and identification requirement can be stated as higher the value for control and identification requirement lower is the chance for process virtualization.

In addition, the alleviator components like monitoring, reach and richness potency enhance the operation of virtualization of the physical process. They mitigated components assist in binding the two requirements. To enumerate richness component builds the connection between sensory requirement and relationship requirement to upgrade the virtualization phenomenon.

CONCLUSION

Virtual technology helps reduce costs, improve quality and productivity, and encourages the use of innovative and creative methods for solving problems in the modern office workplace. Virtual are of great help in making the work more efficient, but this would never eliminate employees for being the leading central force in any organizations. The human workforce remains highly crucial in offices. They can never be replaced with virtual techniques. The success in the use of technology in modern office work environment depends on the sufficiency of money, time and technology expertise. Technology has rapidly advanced to the point of having most of the jobs done digitally that it threatens the employment of people who are not literate on technological advancements. The adoption of technology may be costly, but if used effectively, increased work performance and productivity will reduce all the rest of the production and services costs in offices in the long run. In this modern highly competitive time, the use of technology is inevitable. It is not a want but a need especially in the field of office work of managers and secretaries where information is entered, processed, analyzed and reported to aid in the decision-making process which are vital in the overall success of every organization

SUGGESTIONS

The following recommendations were made;

1. Employees should be kept informed of all information about the technological changes that offices plan to bring and the skills that will be needed for it. The technicality of the use of complex digital applications and other technology used in the office works highly requires an increasing amount of training.
2. Employees should keep abreast with the technological changes to enable them fit into the emerging virtual environment.
3. The researcher of this paper further recommends that organizations including in educational sector should strengthen their effort towards staff development to keep them updated in the new technology.
4. Another long-term solution that this research recommends is for the educational system (Business education inclusive) to modify its educational curriculum in order to incorporate subjects in any course that will develop up-to-date knowledge and skills among students about advancement in virtual office, from basic ICT use to the complex ones that are relevant to their future jobs.

REFERENCES

- Ahmad, S. (2014). Technology in organizations. *Journal of Management*, 2 (7) 73-80.
- Amoor, S. S. (2010). Integrating the internet with the curriculum of office education programme in tertiary institutions in Nigeria. *The Information Manager*, 7(3), 42-49.
- Andrzej, C. (2012). Virtualization as a support tool for teaching the information technologies at higher educational level. Google search.
- Fitzpatrick, J. (2013). Best virtual machine application: Virtual box. http://wikibon.org/wiki/v/VMware's_hypervisor_hold_may_be_waning

- Kusnetzky, D. (2011). A model of Virtualization. From www.oreilly.com/library
- Mark, J. A. (1987). Technological change and employment: some results from BLS research. *Monthly Labor Review*.
- Ozuruoike, A. A. & Abdulkarim, M. (2016). *Business education practicum (2nd edition)*. Basjos prints.
- Pfano, M. & Beharry, A. (2016). The effect of modern office technology on management performance: Durban Westville. *Problems and Perspective in Management*, 14(2-2). Doi:10.21511/ppm.14 (2-2). Doi:10.21511/ppm. 14(2-2).2016.13
- Usono, E. B. (2016). *Business education, skills acquisition and development for posterity*. University of Uyo Press Ltd.
- Valsamidisa, S., Kazanidisa, I., Petasakisa, I., Kontogiannis, S., & Kolokithaa, (2014). E-Learning activity analysis. *Procedia Economics and Finance*. 9 511 – 518.
- Zitter, I., Bruijn, E., Simons, P., & Cate, T. (2011). Adding a design perspective to study learning environments in higher professional education. *High Education* 61. 371-386.