

Chapter 3

Instructional Delivery and Job Performance of Business Education Lecturers in Universities Nigeria

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Abstract

This book is titled "Instructional Delivery and Job Performance of Business Education Lecturers in Universities Nigeria". This book thus concluded that instructional delivery antecedent and irrefutable dynamic for enhancing Job Performance of Lecturers in universities in Nigeria. The study recommended among others that Universities in Nigeria should provide adequate training to enhance lecturers' competence in the use of instructional delivery digitalization in order to enhance lecturers' job performance in business education.

Keywords: Instructional Delivery, Job Performance, Business Education Lecturers

Introduction

Digitization is the process of creating a digital image and then presenting it on a computer, local area network or the Internet. Digitization refers to the conversion of an item in printed. text, manuscript, image or sound, film and video recording from one format (usually print. or analogue) into digital The process basically involves taking a physical object and captured using a scanner or digital camera and converted to digital format that can be stored electronically and accessed via a computer. One of the primary methods of digital collection building is digitization. Digitization is an electronic process of converging information from an analog format to the digital format (Abdulahi, et al., 2019).

The Analog-to-Digital conversion means the transformation of continuous variable signal into the discrete variable signal. The process of digitization involves the scanning of the materials to be digitized. The scanned images are collected in various standard formats like Joint Photographic Expert Group (JPEG), Multimedia Hypermedia Expert Group (MHEG), Moving Picture Expert Group (MPEG), etc. depending upon the type of documents to be digitized. Optical character recognition technology is needed to transform the scanned image into hyper-text document. Digitization is also a high-speed data transmission technique. It is the conversion of any fixed or analog media (such as books, journals, articles, photos, painting, maps, microforms etc) into electronic forms through scanning, sampling or rekeying by using various technologies.

Digitization provides solutions to traditional library problems such as conservation, preservation, storage, space, multimedia documents, remote access to information collections, and acquisition of original digital works created by publishers, agencies and scholars, access to external materials not held in-house by providing pointers to websites,

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other library collections and publisher's servers. Digitization is the process by which analogue content is converted into a sequence of 1s and 0s and put into binary code to be readable by the computer. Digital information also has common characteristics and qualities regardless of whether the content is stored on Digital Versatile Disc (DVD), Compact Disc Rom or other digital storage media. It can be linked to other materials to create multimedia. It is not dependent upon spatial or temporal barriers or hierarchies, and it can be copied limited times without degradation of the original. Digitization is also a means of creating resources that can be re-purposed for unforeseen uses in future. So digitization is especially advantageous for maintaining access.

Instructional Delivery Digitalization in Nigeria

Digitalization for instructional delivery in Universities in Nigeria is still a mirage despite the fact that digitalization has become increasingly important in universities with its immensely usage in this era of technological advancement. Digitalization is a hot concept in universities which has been growing since the inception of the first web-based courses in the mid to late 1990s (Bichsel, 2013). In recent decades, the use of information and communication technologies (ICT) for educational purposes has increased, and the spread of network technologies has caused e-learning practices to evolve significantly (Kahiigi et al., 2008). Digitalization is a new approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction that facilitates the adoption of new ways of understanding and developing learning. Digitalization involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material. (Stockley, 2006). It is the delivery of a learning, training or education program by electronic means. Digitalization could also be considered a natural evolution of distance learning, which has always taken advantage of the latest tools to emerge in the context of technologies for structuring education (Albert et al., 2012).

The huge growth of computers, the internet and other electronic devices such as smart phones and tablets provide global opportunities for education, especially for learning outside the premises of the school (Ngwoke, 2011). They are powerful tools for the development of quality teaching. They are also catalysts for radical change in existing school practices and veritable vehicle for service delivery in universities. They have facilitated quick delivery of learning and dissemination of knowledge and information in a way that were not previously possible. The recognition of these facts, has led to the Federal government of Nigeria to instruct the National Policy on Education (2004) to set standards, regulate framework for the deployment of ICT infrastructure at all levels of education in Nigeria. The federal government urged the state government to adopt the National Policy on Computer Education of 1998 which has its objectives as to encourage teachers to develop a sense of rapport with computer and appreciate its potentials for solving teaching and learning challenges and to entrench computer culture that permeates all activities in institutions of learning (Adeosun, 2010).

Types of Networks

Generally, networks are distinguished based on their geographical span. A network can be as small as distance between your mobile phone and its Bluetooth headphone and as large as the internet itself, covering the whole geographical world. Five types of internet network are discussed.

Personal Area Network (PAN)

A Personal Area Network (PAN) is smallest network which is very personal to a user. This may include Bluetooth enabled devices or infra-red enabled devices. PAN has connectivity range up to 10 meters. PAN may include wireless computer keyboard and mouse, Bluetooth enabled headphones, wireless printers, and TV remotes. For example, Piconet is Bluetooth-enabled Personal Area Network which may contain up to 8 devices connected together in a master-slave fashion.

Local Area Network (LAN)

LAN is (by definition) a local network, usually operating in the same building or on the same campus (Victor, 2021). A computer network spanned inside a building and operated under single administrative system is generally termed as Local Area Network (LAN). Usually, LAN covers an organization offices, schools, colleges or universities. Number of systems connected in LAN may vary from as least as two to as much as 16 million. LAN provides a useful way of sharing the resources between end users. The resources such as printers, file servers, scanners, and internet are easily sharable among computers. LANs are composed of inexpensive networking and routing equipment. It may contain local servers serving file storage and other locally shared applications. It mostly operates on private IP addresses and does not involve heavy routing. LAN works under its own local domain and controlled centrally. LAN uses either Ethernet or Token-ring technology. Ethernet is most widely employed LAN technology and uses Star topology, while Token-ring is rarely seen. LAN can be wired, wireless, or in both forms at once. Local area network (LAN) is any communication network for connecting computers within a building or small group of buildings. A LAN may be configured as:

1. A bus, a main channel to which nodes or secondary channels are connected in a branching structure.
2. A ring, in which each computer is connected to two neighbouring computers to form a closed circuit, or
3. A star, in which each computer is linked directly to a central computer and only indirectly to one another. Each of these has advantages, though the bus configuration has become the most common.

Simple bus networks, such as Ethernet, are common for home and small office configurations. The most common ring network is IBM's Token Ring, which employs a "token" that is passed around the network to control which location has sending privileges. Star networks are common in larger commercial networks since a malfunction at any node generally does not disrupt the entire network.

Even if only two computers are connected, they must follow rules, or protocols, to communicate. For example, one might signal "ready to send" and wait for the other to signal "ready to receive." When many computers share a network, the protocol might include a rule "talk only when it is your turn" or "do not talk when anyone else is talking." Protocols must also be designed to handle network errors.

The most common LAN design since the mid-1970s has been the bus-connected Ethernet, originally developed at Xerox PARC. Every computer or other device on an Ethernet has a unique 48-bit address. Any computer that wants to transmit listens for a carrier signal that indicates that a transmission is under way. If it detects none, it starts transmitting, sending the address of the recipient at the start of its transmission. Every system on the network receives each message but ignores those not addressed to it. While a system is transmitting, it also listens, and if it detects a simultaneous transmission, it stops, waits for a random

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time, and retries. The random time delay before retrying reduces the probability that they will collide again. This scheme is known as carrier sense multiple access with collision detection (CSMA/CD). It works very well until a network is moderately heavily loaded, and then it degrades as collisions become more frequent. The first Ethernet had a capacity of about 2 megabits (millions of bits) per second (mbps), and today 10- and 100-mbps Ethernet is common, with gigabit-per-second (billions of bits per second; gbps) Ethernet also in use. Ethernet transceivers (transmitter-receivers) for personal computers are inexpensive and easily installed.

A standard for wireless Ethernet, known as Wi-Fi, has become common for small office and home networks. Using frequencies from 2.4 to 5 gigahertz (GHz), such networks can transfer data at rates up to 600 mbps. Early in 2002 another Ethernet-like standard was released. Known as HomePlug, the first version could transmit data at about 8 mbps through a building's existing electrical power infrastructure.

Metropolitan Area Network (MAN)

The Metropolitan Area Network (MAN) generally expands throughout a city such as cable TV network. It can be in the form of Ethernet, Token-ring, ATM, or Fiber Distributed Data Interface (FDDI). Metro Ethernet is a service which is provided by ISPs. This service enables its users to expand their Local Area Networks. For example, MAN can help an organization to connect all of its offices in a city. Backbone of MAN is high-capacity and high-speed fiber optics. MAN works in between Local Area Network and Wide Area Network. MAN provides uplink for LANs to WANs or internet (Nieporent, 2011).

A metropolitan area network (MAN) is a computer network that is larger than a single building local area network ([LAN](#)) but is located in a single geographic area that is smaller than a wide area network ([WAN](#)). Generally, it is several LANs interconnected by dedicated [backbone](#) connections. It may also refer to public use networking infrastructure in a municipality or region. A metropolitan area network traditionally refers to a private data network used by a single organization in several buildings or by several organizations interconnected in the same geographic vicinity. It is larger than a LAN in a single building but not large enough to be considered a WAN. The size usually ranges from 5 kilometers to 50 km. If all the buildings are on a single piece of contiguous property, it may also be considered a [campus network](#) (Victor, 2021).

Generally, a MAN is small enough that dedicated point-to-point, or backbone, data connections are established between buildings or to a hosted colocation (colo) data center. These backbone connections can use a variety of link technologies, including Ethernet runs, leased [dark fiber](#) or private fiber, point-to-point Wi-Fi, wireless LAN ([WLAN](#)), millimeter wave (MM wave) radio and microwave radio links or private [5G](#) networks. Public internet routed links, such as through a virtual private network (VPN) or public cloud, would not be considered part of a MAN but may be included in a MAN diagram for simplicity. A well-designed system will have redundant links between locations. A MAN may use a local exchange carrier (LEC) to provide the connections between LANs and may connect to an internet exchange point for high-speed communication between the MAN and the public internet. It may also connect to other vendors at a peer exchange or to cloud vendors, such as with [Amazon Web Services \(AWS\) Direct Connect](#).

The primary advantage of a MAN over a WAN is the high bandwidth enabled by the dedicated links of a metropolitan area network. This application of a MAN provides higher speed, from 1 gigabit per second to 100 Gbps, and lower latency than would be possible over a WAN. Since the organization maintains control of the connection, it can apply traffic

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shaping and increased security. Disadvantages of a MAN over a WAN include potentially higher costs, greater complexity and additional logistics required to maintain the links. A well-designed MAN will also have redundant connections, requiring at least two connections per building (Miitchel, 2020).

Since a metropolitan area network only refers to relative size, it may also be used to describe a public or private network that attempts to provide connectivity that covers an entire metropolitan area. In this sense, a MAN can be closely related to smart city concepts in several different ways:

1. A MAN may be a large number of privately owned or telecommunication provider interconnects between organizations.
2. A MAN may be a public or free Wi-Fi system provided to residents of a city.
3. A MAN may be a network used by a municipality or company to interconnect its public works systems and internet of things (IoT) devices.

As technology continues to advance and more devices become interconnected, the use of metropolitan area networks will continue to increase. Some also use MAN to refer to the high-speed internet connectivity across a city provided by 5G cellular technology, while a potential future use for a MAN would be a citywide network of autonomous vehicles sharing location, traffic and destination data (Clessi, 1986).

Examples of a metropolitan area network

Cisco Systems owns several buildings located in three different areas of San Jose, Calif. The company connected these sites by trenching its own fiber and leasing dark fiber from another company to form a single metropolitan area network.

[CERN](#), the European Organization for Nuclear Research, owns several buildings on a single piece of land in Geneva and connects them together with optical fiber into a campus area network or MAN. New York City provides free Wi-Fi access to all residents as a large single MAN. It also connects traffic lights and parking meters wirelessly as a metropolitan area network. A telecommunications provider in London leases fiber connections. Many companies use these to interconnect, forming a large MAN. National Smart Cities Mission is a program by the Indian government that seeks to simplify communication among the government, citizens and public resources. The mission, which initially included 100 cities and is set for completion in 2023, requires the use of a MAN.

Concepts of Job Performance

Performance is defined at the level of each individual within the organization or at organization level. It is perceived as an understanding of the achieved results of behavior and outcome. The behavioral aspect refers to what an individual does in the work situation. It encompasses behaviors such as assembling parts of a car engine, selling personal computers, teaching basic reading skills to elementary school children, or performing heart surgery. Not every behavior is subsumed under the performance concept, but only behavior which is relevant for the organizational goals: "Performance is what the organization hires one to do, and do well" (Campbell et al., 1993). Thus, performance is not defined by the action itself but by judgmental and evaluative processes (Ilgen & Schneider, 1991; Motowidlo et al., 1999). Moreover, only actions which can be scaled, i.e., measured, are considered to constitute performance (Campbell et al., 1993). The outcome aspect refers to the consequence or result of the individual's behavior. The above described behaviors may result in outcomes such as numbers of engines assembled, pupils' reading proficiency, sales figure, or number of successful heart operations. In many situations, the behavioral

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and outcome aspects are related empirically, but they do not overlap completely. Outcome aspects of performance depend also on factors other than the individual's behavior. For example, imagine a teacher who delivers a perfect reading lesson (behavioral aspect of performance), but one or two of his pupils nevertheless do not improve their reading skills because of their intellectual deficits (outcome aspect of performance). Or imagine a sales employee in the telecommunication business who shows only mediocre performance in the direct interaction with potential clients (behavioral aspect of performance), but nevertheless achieves high sales figure for mobile phones (outcome aspect of performance) because of a general high demand for mobile phone equipment. In practice, it might be difficult to describe the action aspect of performance without any reference to the outcome aspect.

Cognitive Flexibility Theory

The researcher will anchor this study on cognitive flexibility theory by Spiro in 1948. Among the approaches to learning that draw on [cognitive theories](#), cognitive flexibility theory recognizes that some domains of knowledge are complex and ill-structured. In contrast to well-structured domains that may be organized in linear or hierarchical formats that translate into sequential instruction, ill-structured domains are viewed as irregular and contextual (Spiro et al., 1987). The theory suggests that instructional design for such domains should represent the complexity of the domain by creating webs of information (e.g., through the use of hypertext), using multiple perspectives, and embedding the knowledge within multiple contexts. Students of ill-structured knowledge domains should engage in critical analysis, perspective taking, and problem framing to support the transfer of knowledge to new contexts. Thus, cognitive flexibility within such complex domains.

This theory includes the ability to represent knowledge from different conceptual and case perspectives and then, when the knowledge must later be used, the ability to construct from those different conceptual and case representations a knowledge ensemble tailored to the needs of the understanding or problem-solving situation at hand (Spiro et al., 1991). While some aspects of learning to teach may reside in learning factual information and theoretical principles, many aspects of teaching can be considered a complex and uncertain endeavor. Many illustrations of teaching practice demonstrate the complexity of teachers' knowledge application, decision making, immediacy of response, and the overall management of dilemmas in daily practice. Based on this view of teaching, knowledge for teaching requires a flexibility of application and practiced decision making that would allow beginning teachers to respond flexibly to messy and context-dependent variation. Other theories that relate to this study include: the situated learning theory and teaching acceptance model.

Conclusion

This book is on instructional delivery digitalization and Job performance of lecturers in universities Nigeria. This book thus concluded that instructional delivery digitalization is a strong antecedent and irrefutable dynamic tool for enhancing Job performance of lecturers in universities in South-South Region of Nigeria.

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