

THE ROLE OF INFORMATION DISSEMINATION TECHNOLOGIES IN NATIONAL DEVELOPMENT

By

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Abstract

The role of information has increased rapidly due to social and dynamic developments in science and technology. Information plays an integral part in human life. Virtually every nation of the world undertakes one kind of research or the other. The research findings are used to address national development issues. These research findings are made public through the use of information dissemination technologies. This study used historical survey method. Its objectives are: to review services provided through the use of mobile technologies, to identify the advantages of mobile technologies and to determine the role information dissemination technologies play in nation building. The survey found out that information dissemination technologies play prominent roles in education, health, security and economy of every nation. The impact of information dissemination technologies are felt more in developed nations. The study recommends that developing countries like Nigeria should invest more in scientific and technological researches and the findings adopted for the development of the country.

Key Words: Development, Information, Dissemination, Technologies, Mobile Technologies and Library Services.

Introduction

Development is requisite for human life and survival. And science and technology make it possible for development to take place in every society. Development is a process that creates growth, progress and positive change. This change refers to the addition of physical, economic, environmental, social and demographic components. Many schools of thought have emerged in an attempt to define and explain the concept of development. Amartya (1989), a Jewish scholar developed the “capacity approach school” which defined development as a tool enabling people to reach the highest level of their ability through granting freedom of action. This freedom of

action for him entails freedom of economic, social and family actions. EHUD (1997) asserts that this approach became a basic for the measurement of development by the (HDI). Human Development Index which helped in the development of the United Nations (UN development programme (UNDP) in 1990.

National development is the capacity of a country to raise the standard of living of its residents. It can be achieved by providing individuals with basic livelihood requirements and supplying them with employment. The components of national development as outlined by Veereck (2017) are: development of rural areas, increasing agricultural inputs, enlargement of economic knowledge, handling of growth in urban areas and eradication of poverty. She concluded that the development of a country can generally be determined by its per capita income, its average per literacy level, health status of her people and all the above mentioned. The term national development is very comprehensive. It includes all aspects of the life of an individual and the nation. It is the process of reconstruction and development in various dimensions of a nation and development of individuals.

National development thus includes full growth and expansion of our industries, agriculture, education, social religious and cultural institutions. Moreover national development implies development of a nation as a whole. It is best described as all round and balanced development of different aspects and facets of the nation viz: political, economic, social, cultural, scientific and material.

Traditional and social media are the two broad types of information dissemination technologies in the world today. Traditional media include phones, television, oral communication and print publications. Social media encompasses text messages, microblogs and

online news outlet. In a narrower term, information dissemination technologies refers to computers and mobile phones. This study is all about the role of mobile technologies in the dissemination of information.

One of the major characteristics of mobile technologies is speed. Information is transmitted from the sender to the recipients in seconds. The languages, type and length of information transmitted does not matter. It is done very fast. The time of the information seeker is saved. The time it would have taken the information seeker to go to the source of the information is over taken. For instance, reference question which would have taken the information seeker time or the reference Librarian hours or days to search is accessed in minutes. The mobile phone can also disseminate information to a group of people simultaneously. This costs less and saves time. The portable or handy nature of mobile phones makes it possible for users to use it anytime and anywhere. One can use it in a meeting, bedroom, bathroom or market place.

Adams (2017) holds that development has the following characteristics

- It is a continuous process
- It follows a particular pattern like infancy, childhood, adolescence, maturity
- Most traits are correlated in development
- It is the result of interaction of individuals and environment
- It is predictable
- It is both quantitative and qualitative
- Different individuals have different growth patterns

Literature Review

Information

No organization or human being can live without information. Information shapes and re-shapes human activities and actions. We act the Way we act because of information available to us. Information is very important in our everyday life. Oyelekan (2020) quoting Igwebuike 2008 asserted that information is an important agent in human development: human beings create and use information. Information becomes useful and effective when it is used and transmitted from one person to the other and from one generation to the next. An untransmitted information might become latent and useless. Information is very important in human life that we cannot even prepare food to eat without information regarding how such food is prepared.

Information dissemination technologies are sets of technological tools and resources used to communicate and to create, disseminate, store and manage information. In spite of the importance of information to all human beings, we acknowledge that it is a term that is difficult to define because it has several dimensions. Information means many things to different people. To some, information is news, while others refer to information as facts, and yet to others it is essentially data. Johnson (2018) hold that while telecommunication engineers associate information with bits and data, the librarian associate information with recorded knowledge, and microbiologists consider information as the genes of DNA which are transmitted from one generation to the other.

It is worthy of mention here that information is used interchangeably as news, facts, data and knowledge. Machlup and Collins (2016) quoting Mansfield(1998) holds that information

increases the state of knowledge of a recipient, resolves uncertainties and adds value in decision making. Buckland (1991) highlighted the ambiguities of information when he characterized it as a process, knowledge and thing. For him, information is a process when it is performing the function of informing, which involves transmitting: information from a source to a recipient. It is knowledge when it is performing the role of imparting knowledge to an individual. It becomes tangible when it is a thing, that is to say a physical object such as data or document. From the above exposition, one can safely conclude that there cannot be an exact definition of information.

But what is, however, apparent is that there is a connection between data and information, and between information and knowledge. Robin (1998) provided a relationship between data, information, knowledge and wisdom when he asserted that data are raw and unprocessed, information is a processed data from which meaning arises and is communicated. And knowledge is a further processed information that is organized, interrelated and more broadly understood and applied. Wisdom is knowledge applied to the benefit of humanity. From the above exposition, data — information — knowledge — wisdom is a continuum and also hierarchical.

However, the important point is that information is very crucial in the continuum. It is therefore not surprising that a wide range of people are involved in information activities. Such people are called information professionals. These information professionals are saddled with the job of acquiring, processing, disseminating, and maintenance of information. Information today is ubiquitous, multitudinous and in perpetual flux. It is important to mention here that information is so Important that individuals, organizations, societies and governments should keep abreast of it, exploit and harness it for their own specific needs.

Dissemination

Dissemination has to do with distributing, spreading and broadcasting. The word is especially used in reference to the distribution of information or things that contain information like files and documents. It is also associated with the official release of such information by organizations, such as the dissemination of a press release by a company or the dissemination of information to the public by a government agency. E.g the chief executive of radio Nigeria is responsible for the dissemination of press releases to various outlets.

It is worthy of mention at this juncture that the first record of the word dissemination was around the 1640s. The verb form disseminate was used earlier around 1600 (Evans 2019). It comes from the Latin verb dissemina which means to ‘sow’. Sometimes, the dissemination of information is like the scattering of seeds in a field, with the goal being to spread it far and wide to the largest number of people possible. It is worthy of mention at this point that dissemination of information may involve a more select set of recipients, such as a press release that is only provided’ to certain journalists or news organizations. Sometimes it happens in a much less organized way, such as on the internet. Dissemination can also mean, to communicate or share data, proof, statistics, information or fact. Dissemination refers to the broadcast of a message to the public without direct feedback from the audience.

Technology

Technology can be described as a branch of knowledge that deals with the creation and use of technical means and their interaction with life, society and the environment. Technology draws upon such subjects as industrial arts, engineering, applied science and pure science. It can

also be described as the application of scientific knowledge for practical ends. Technology according to Greeves (2016) means a systematic treatment and application of knowledge to reach practical goals in a specified and reducible way.

One can posit that the history of technology is the history of invent of tools and other wooden and metal artifacts. Thus, technology can refer to methods of making simple stone tools to the complex genetic engineering and information. technologies that have emerged since the 1980s. Adams (2017) holds that the word technology comes from two Greek words ““techne” meaning art and craft and the word ‘logos’ which means word or speech. He argues that, the word technology was first used to describe applied arts, but now used to describe advancements and changes which affect the environment around us. Technology has made a lot of impact in our society. It has enabled people to create new things and make new scientific discoveries. Technology has assisted people to travel to places they could not previously travel to. It is also worthy of mention that science and technology have provided instruments that make it possible for us to study nature in a more detailed form than our natural senses allow.

Since much of technology is applied science, technological history is connected to the history of science. Technology is a force for economic growth and a means to develop economic, political and military power. For Edwin (2019), the history of technology is also the history of invention, development, innovation, engineering and applied sciences. This implies that historians of technology have varied backgrounds which include engineering, economic history, history of science and sociology. Morgan (2018) in agreement with this saying asserts that since ‘World War I, the history of technology has taken some of the attributes of a “discipline” through the establishment of graduate programmes and scholarly journal of international repute.

Objectives

The prime aim of this opinion study was to explore the use and application of information dissemination technologies in national development. Documentary literatures were used for data collection. The paper pursued the following objectives:

- To review services provided through the use of mobile technologies
- To identify the advantages of mobile technologies
- To determine the role information dissemination technologies play in nation building.

Research Method

A historical research design was used in this study. Documentary literatures were extensively consulted for relevant data collection. The purpose was to collect, verify and synthesize data to state the role mobile technologies as information dissemination technologies play in nation building.

Information Dissemination Technologies

Science and technology hold the key to the progress and development of every nation. Technology plays a fundamental role in wealth creation, improvement of the quality of life and real economic growth and transformation in every society. In India, Nehru (2022) declared that science and technology have been given importance in nation-building since independence with the establishment of the department of science and technology. This department encourage research and the findings of these researches were circulated among the members of the executive arm of the state for implementation and advancements.

Prominent among information dissemination technologies is mobile technology. Mobile technology refers to portable electronic devices that allow instantaneous access to information (Nalluri and Gaddan, 2016). Examples of mobile technology are smart phones, Ipods, cell phones and MP3 players. These mobile technologies come with a wide range of advanced features and capabilities that provide portable access to information across boundaries. These features comprise of: Bluetooth, Mail, and desk top synchronization, memory card, mobile web, social media platform, accelerometers, cameras, text, audio, video, mobile office, games, image messaging 3G, Global positioning system (GPS) and music player (Negri, 2014 Saxena & Yadav, 2013 Vollmer, 2010)

Mc Grath (2016) conducted an online survey which revealed that 87% of internet users have smart phones. As the number of mobile technologies increase exponentially, dependence on computers has decreased. These smart phones are used to disseminate information in a more convenient, timely and efficient manner. Mobile technology provides a suitable platform for information dissemination as it is more personalized. These information builds and develops the individual user, thereby developing the nation.

SMS Notification Services

Short message service and multimedia messaging entails use of mobile telephony systems to exchange text messages and multimedia content such as videos, images and audio files. Libraries use this service to alert patrons regarding outstanding fees, renewals, provision of call numbers, interlibrary loan, issue return notifications, items on hold and new arrivals (Kumar & Chitra, 2008, Kumar, 2014; Negi, 2014; Wang, Ke & Lu, 2012). An integrated library management software is used to generate such notification, for example; library 0.7 Aim Hack,

My Info Quest, Mosio's Text a librarian, Upside wireless used by UCLA libraries (Verma & Verma 2014). Users also make use of the web for sms through the use of social media networks (twitter) and other web applications such as Google sms (Probhakaran & Kalyani 2014). Wiki offers a list of libraries which uses various types of sms notification service and other library services to interact with their clients. Libraries are instituted to take care of the information needs of her clients. These needs might be research, academic, economic, health and leisure. By providing these needs, the libraries and their community of users are equipped with relevant information that will lead to the growth and development of the nation and themselves.

In today's world, information societies are no longer separated. Nwagwu (2006) Okiy (2010), west & health (2011) state that mobile phones, fax machines, the internet and other information dissemination technologies have accelerated the concept of globalization and national development. With the use of technology, individuals, organizations and government agencies are able to share ideas and work on projects from across continents. These shared projects are for national development. For instance; Perez (2018) outlined how Israel benefited from a shared project with United States of America. He posits that the shared project helped Israel to develop a fighter jet with fifteen (15) kilometers night vision. This shared project which was made possible by information technologies have developed Israel air force. In America during the time of COVID 19, medical doctors, pharmacists and other researchers were able to work in proxy for the development of a vaccine (David, 2020). They worked in proxy through the help of information dissemination technologies and were able to manufacture a vaccine.

The strategic role information play in national development cannot be over emphasized. A nation is ranked according to how she accessed, harnessed and appropriated information. This

has been the yardstick used in classifying nations as first, second and third world countries. The western countries prioritize research and appropriate its findings for national development. These research findings are disseminated through information dissemination technologies. Even those that will utilize the findings do that with the help of information dissemination technologies. For instance, the American soldiers that killed Osama Bin Laden were in constant discussion with Obama the American president till they succeeded in their mission. Malaysian government was able to come to Nigeria, took some palm nuts, researched on them and improved on it. Now Malaysia is now one of the big palm oil exporting countries. They achieved this feat with the help of information dissemination technologies.

Health Care

In health sector, the impact of information dissemination technologies are visible. Health information technology (HIT) according to Negi (2014) is the application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing and use of health information, data and knowledge for communication and decision making. HIT technology represents computers and communications attributes that can be networked to build systems for moving health information.

Health informatics tools include computers, clinical guidelines, formal medical terminologies and information and communication systems. It is applied to the areas of nursing, clinical care, dentistry, pharmacy and public health. Nalluri (2016) hold that information dissemination technologies have been very helpful to the health care sector. He maintains that it has provided electronic medical records (EMR). This converts medical information into a single

data base. Not only does this technology reduce paper costs, it allows health care providers to access pertinent patient information thereby aiding diagnosis and treatment.

Electronic Medical Record (EMR) has now been developed to check drug prescribing patterns of medical doctors. This technology carefully evaluates doctors' prescription based on established standards. Reducing medical errors has become a priority all over the world. Specially adverse drug events are an important source of injuries in hospitalized patients (Wang 2012). In response to improve patient safety, computerized physician order entry (CPOE) systems have become increasingly more common (Edwin 2019). In general, CPOE systems force medical doctors to write all orders online. These systems have the capacity to verify that written orders are correct and that it is based on a patient's profile and also check the dose and contraindications of a specific drug. This reduces medical error. Computerized physician order entry (CPOE) can reduce total medication error rates by 80% and adverse errors by 55% (WANG 2012). The information dissemination in this regard is a bridge builder. It links the medical doctors, the prescribed drugs and the patient. This highly reduces the mortality rate and enhances health care delivery thereby building the nations.

Education Sector

We are now talking about distant learning. A Nigerian can now be a student of a university in England or America. He or she will be receiving lectures and writing examinations online via the help of information dissemination technologies. The student logs in and receives lectures and write examinations. For instance; the school of post graduate studies, University of Nigeria Nsukka organized a workshop for newly admitted Ph.D students in January this year.

The workshop was done online. The students logged in and participated in the workshop. The classroom was overtaken but the education was achieved.

Electronic Medical Records (EMR) hold great promise in the medical area. The ability to care for patients with a record that is intergrated with laboratory and pharmacy information and provides point of service information regarding preventive services, diagnosis, treatment and follow up represents a dramatic advance in patient's care. And these are achieved through information dissemination technologies. Information dissemination technologies have been playing commendable role in education of medical students and in the practice of the profession in the Western world. By so doing, it is contributing positively to the development of the western nations.

Conclusions and Recommendations

From the documentary literatures, it is clear that information dissemination technologies play a leading role in nation building. It is being used in all spheres of life such as health care delivery, education, agriculture, banking sector, information seeking and retrieval. At the centre of all technological developments is the growing use of mobile technologies and internet.

The findings reveal that information dissemination technologies are means through which research findings are made public. The very fact that mobile technologies come with a wide range of advanced features and capabilities makes it possible for it to provide portable access to information across boundaries. It is recommended that developing countries like Nigeria should invest more in science and technology research. And the findings of these research should be made accessible to professionals for implementation and transformation of their nations.

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