

# IMPACT OF DIGITAL MEDIA ON EFFECTIVE HEALTHCARE DELIVERY IN CROSS RIVER STATE

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## Abstract

The dawn of the digital age and digital media technology has transformed the communication landscape in the world. Every aspect of human life has been transformed by the digital media technology. Its influence cut across all sectors including, politics, business, entertainment, fashion etc. The study examined the impact the digital media have had on effective healthcare delivery in Cross River State. Technology determinism theory was adopted to drive the theoretical framework. The paper argues that the exponential growth of digital media has led to the emergence of more efficient, transparent and faster healthcare delivery in Cross River. It triangulated Focus Group Discussions as well as the In-depth interviews as methods of data collection. Among other findings, the study revealed that digital media technology has improved Doctor and patient's relationship because of the smooth communication as well as the administration of overall healthcare delivery in the state. It also showed that more people rely on social media pages, online sources, health blogs for health tips and information and that healthcare is now more accessible and effective because of digital media technology.

**Keywords:** *Digital media, healthcare delivery, Cross River.*

## 1. INTRODUCTION

The dawn of the digital age and the growth of digital media technology has transformed the communication landscape in the health sector in Cross River State hence, promoting effective healthcare delivery. Besides, revolutionizing traditional health care provider – patient communication, according to Wikipedia, digital media have opened up creative opportunities for health messages, health promotion, and intervention, as well as management and prevention of diseases (WIKIPEDIA, 2021). The term digital media is a broad concept that encompasses communication technologies and platforms such as the internet, digital games, avatars, and social networking sites and applications. The four areas of digital media

(internet, social media, digital games, and the use of avatars) are used in the area of health communication varied effectiveness (ENCYCLOPEDIA, 2021).

Idowu et al. as cited by Aliede posited that, “information and communication technology, otherwise the digital media, is arguably the most rapidly growing segment of the world's ecosystem. The development in the sector permeates every human activity: social, economic, cultural, religious, political or health care” (ALIEDE, 2012). The huge networking possibilities afforded by digital media have significantly transformed the health care system in the world by dispersing health care information with comparative ease, bringing patients closer to care givers, making access to the best health care technology and expertise, available to the remotest parts of the world (FELICIANI, 2003; MYERS, 2003).

As noted by Aliede, with digital media today, doctors on call can move freely with their mobile phone and can easily be reached, in case of emergency, to give initial instructions on how to manage the patient while they are on their way to the facility if necessary (ALIEDE, 2012). Through the internet, it is possible to set up facilities for intensive patient monitoring services which can enable doctors to watch their patients at a remote site, monitor their vital signs in real time as well as give advice for treatment which Cross River healthcare facilities are not left out in the revolution through digital media.

### *Research Questions*

This study intends to provide answers to the following questions:

1. What are the impacts of digital media on effective healthcare delivery in Cross River?

2. To what extent has the digital media been used in healthcare delivery in Cross River?
3. What is the public perception on the impact of digital media technology in healthcare delivery in Cross River?

## **2. HISTORY OF DIGITAL MEDIA**

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It was reported that codes and information by machines were first conceptualized by Charles Babbage in the early 1800s. Babbage imagined that these codes would give him instructions for his monitor of difference and analytical engine, machines that Babbage had designed to solve the problem of error in calculations. Between 1822 and 1823, Ade Lovelace wrote the first instructions for calculating numbers on Babbage engines. Lovelace's instructions are now believed to be the first computer programme. Although the machines were designed to perform analysis tasks, Lovelace anticipated the possible social impact of computers and programming writing.

However, the first digital media came into existence with the rise of digital computers. Digital computers use a binary code and Boolean logic to store and process information, allowing one machine in one configuration to perform many different tasks. The first modern, programmable, digital computers, the Manchester Mark I and the EDSAC, were independently invented between 1948 and 1949.

Digital media came into common use in the early 1950s, the conceptual foundation of digital media traced to the work of scientist and engineer Vannevar Bush and his famous essay "As we may think," published in the Atlantic monthly in 1945. Bush envisioned a system of device that could be used to help scientists, doctors, historians and others to store analyse contents.

With the worldwide web (www) and the internet, digital media has transformed the society of the 21<sup>st</sup> century in a way that is frequently compared to the cultural, economic and social impact of the printing press. The change has been so rapid and so widespread that it has launched an economic transition from an industrial economy to an information-based economy, creating a new period in human history, known as the information age or the digital revolution.

## **3. CONCEPTUAL DEFINITION**

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Digital media are any media that are encoded in machine readable formats. Merriam-webster, 2019 defined it as a form of electronic communication (such as websites for social networking, microblogging, internet etc) through which users create online communities to share information, ideas, personal messages, and other content (such as videos). Asemah, 2011 as cited by Chiakaan, 2013 defines digitisation as the efficient compact storage and transmission of data. It is the process that compresses, stores and transmits data, including texts, sounds, and video, in extremely compact and efficient ways. For example, an individual sitting in front of a screen can control the editing by passing unwanted portions and focusing on what is most valuable. The different mass media, both the print and electronic, are moving into digital transmission, which is eroding the differences between them (CHIAKAAN, 2013).

Other scholars have given different definitions as well but the central point to the other definition, as seen above, is that the digital media have made information system completely easy and safe.

## **4. ADVANCING DIGITAL HEALTH THROUGH DIGITAL MEDIA IN NIGERIA**

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According to the Guardian Newspaper of March, 2019, to bridge the gap of low doctors, nurses, midwives, pharmacists and other health workers professional ratio to the over flowing numbers of patients, stakeholders are leveraging digital technology for health. Digital or mobile health is a medical and public health practice supported by technological devices, such as phones, patient monitoring devices, personal digital assistants (PDHs) and other wireless devices.

Medical experts believe that digital media have the ability to ensure universal health care delivery by increasing enrolment in the National Health Insurance Scheme (NHIS) and rendering services to patients in rural and hard-to-reach areas in the country, which Cross River State is not left out.

It is believed that with the help of digital technologies, misdiagnosis and over diagnosis of diseases, medical errors, faking of medicines and poor treatment outcomes has greatly reduced. "The proliferation of cell phones across the globe, even in locales without basic healthcare infrastructure, is spurring the growth of mobile health (mhealth) in developing countries" (MUANYA, 2019).

With over 4.7 billion cell phones users around the world, using such devices as a way to aid health is surely a step towards achieving global wellness. As mhealth Alliance explained: "The ubiquity of mobile devices in the developed or developing world presents the opportunity to improve health outcomes through the delivery of innovative medical and health services with information and communication technologies to the farthest reaches of the globe".

Recently, a digital health summit was organized in Lagos by the Healthcare federation of Nigeria which brought together stakeholders in the digital health space including the Federal Ministry of Health, the Federal Ministry of Communication, the National Information Technology Development Agency (NITDA), the National Health Insurance Scheme (NHIS), the World Health Organization (WHO), the World Bank and the Network Operation (MNOS) to see how digital media or technologies can be effectively used by medical personals in order to enhance the quality of health care delivery in the country.

More so, researchers have developed a biosensor that attaches to a phone and uses bacteria to detect unsafe arsenic levels. The device, developed at the University of Edinburgh, United Kingdom (U.K), generates easy-to-interpret patterns, similar to volume-bars, which display the level of contamination. Researchers have said that new devices could replace existing tests, which are difficult to use, need specialist laboratory equipment and can produce toxic chemicals.

## 5. WAYS IN WHICH THE DIGITAL MEDIA IS IMPACTING THE BUSINESS OF HEALTH-CARE

The product of quality healthcare delivery in any country today is guided by the level of ICT

infrastructure possessed and used by that country. Therefore, a good digital infrastructure, represents a condition for enhancing the well-being of a country's citizens. According to the Health Research Institute retrieved from online (2019), digital media are helping companies to have an impact on the healthcare business, and take a more active and engaged role in managing individual's health which includes:

- 1) **Patients are taking a more active role in their healthcare.** Digital media presents new opportunities for how individuals manage their health, the report noted, whether researching a certain illness or joining a support group. Patients these days are using tools like Facebook, Twitter, YouTube, and other internet facilities to better educate themselves. Some may share a health goal to generate support or engage in a patient community with other patients.
- 2) **Digital media are parts of the doctors or medical staff's equipment today:** With the help of digital media, misdiagnosis and over diagnosis of diseases, medical errors, faking of medicines has all been improved upon as doctors can at anytime consult the digital media for proper diagnosis.
- 3) **Patients select treatment and providers policy:** It is no secret that consumers are increasingly turning towards digital media to take healthcare-related decisions, like the kind of medical expert to see and when to seek a second opinion. Across the health industry, consumers seem to value information and services that help them make their healthcare easier to manage.
- 4) **Providers can use digital media as an outcome-based management:** The industry is shifting towards outcome-based measurement, due in part to provision in the affordable care act, like medicine's value-based purchasing and accountable care. According to the (HRI), a hospital's or physician's first encounter with a patient is often through its online presence; therefore, providers take advantage of the trust consumers have for them over their companies.
- 5) **Consumer review or comment:** An increasing number of patients can choose to rely on

existing assessments of various doctors or clinics when it comes to making a decision regarding the choice of medical services. More and more patients look for a particular doctor and choose him on the internet.

## **6. THEORETICAL FRAMEWORK**

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The theoretical framework adopted for this study is the Technological Determinism Theory. This is a theory that is premised on the fact that societies change alongside with technology. The theory believes that social progress follows an unavoidable course that is driven by technological innovation. The theory has two central concepts: (1) That technological development itself follows a predictable, traceable path that is beyond any cultural or political influence and (2) That technology in turn organizes society in a way to further develop itself. The communication theorist and media scholar Marshall McLuhan laid out one famous example of technological determinism in his book "Understanding media: The extension of man", wherein he asserted that "the medium is the message". This rejection of "content" in favour of the technological medium as an important consideration in media studies is only one facet of technological determinism but, in many ways, it represents the classic example.

The term "technological determinism" was coined by Thorstein Veblen in 20<sup>th</sup> century and this revolves around the preposition that technology in any given society defines its nature.

Karl Marx believed that technological progress led to newer ways of production in a society and this ultimately influenced the cultural, political, and economic aspects of a society, thereby inevitably changing society itself.

According to Winner, the theory has two basic assumptions.

i) That the technology of a given society is a fundamental influence of the various aspects and sectors like, agriculture, health, education and others which a society exist.

ii) Changes in technology are the primary and most important source that leads to change in the society in different ways including health, agriculture, industry etc.

History shows numerous examples which explain why technology is considered to be determining the society that we live in. The inversion of smart phones have changed the way patients in the hospital can reach out to a doctor, drugs prescription online, searching for a good medical expert and the facility and how patients can take care of their own health even without being told by an expert, but through digital media. The discovery of steam power led to the development of the industrial society and the introduction of computers has led to the dawn of the information age. Therefore, it changes the way people think and how they interact with others and can be described as a three-word logical proposition as social progress is driven by technological innovation.

## **7. METHODOLOGY**

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This study is essentially a survey using the qualitative data which sought to obtain opinions and perceptions of participants on effective health care delivery in Cross River State, using the digital media.

This analysis employs Focus Group Discussions (FGDs) and In-depth Interviews also known as IDIs, the study selected the Focused Group Discussants (four males and four females groups) in three senatorial districts of Cross River State. It was with the view of obtaining an in-depth knowledge of the impact of digital media on effective health care delivery in Cross River State.

Face to face in-depth interview was done with selected sample of (fifteen) participants drawn from the three senatorial districts with the intent of combining the findings with the focused group discussion. Data emerged from a very detailed interview guide, questions and follow-up questions developed through the period of interacting with the discussants. The format according to Chukwuma includes detailed orient probes, elaborate probes and clarification probes for a clear understanding and clarity of statements from the participants (CHUKWUMA, 2018).

**Table 1. Characteristics of Discussants across Senatorial Districts**

Discussants	Cross River South	Cross River Central	Cross River North	Total
Group A-Males	4	4	4	16
Group B-Females	4	4	4	16
Total	8	8	8	24

Participants were briefed on the importance of the study to their access to health care delivery especially in the era of global pandemic ravaging the country with Cross River State as a key component. A tape recording of the discussion was obtained from the participants, with benefits explained to them for mutual trust between the researcher and the participants. Males participants and note takers conducted Focused Group Discussions for the male while female participants and note takers did same for the female with adherence to the focused group discussion guidelines. Both FGD and IDIs were in a private setting to avoid extraneous element during the interview while the audio recording which lasted for 30-40 minutes was conducted by the research assistants.

The following themes were used to present the data gathered in the FGDs and In-depth interview conducted in the study:

**8. DISCUSSION OF FINDINGS**

- 8.1. The impact level of digital media
- 8.2. The extent to which digital media has been used
- 8.3. If it has improved healthcare delivery

**8.1. The Impact Level of Digital Media**

The Focus Group Discussion as well as the in-depth interviews conducted revealed that there is a great impact of digital media on effective healthcare delivery in Cross River State. Participants particularly opined that the digital media technology has made healthcare delivery more accessible.

A participant who responded to the question: “Has digital media technology in anyway impacted the quality of healthcare delivery in Cross River State?” stated clearly that:

The digital media technology is taking centre a stage in every sector and the health sector particularly in Cross River is not left out. Most patients don’t even need to go to the hospital to see their doctors, just a call or a simple Google search and their problem is solved.

From the group discussion and in-depth interview, it is clear that digital media have played a significant role in the effective healthcare delivery in Cross River State.

**8.2. The Extent to which Digital Media Have Been Used**

The FDGs and interview findings showed that both health practitioners and patients in Cross River have used the digital media technology. Many of the participants posited that they use the social media platforms: WhatsApp to communicate with their doctors as well as Facebook to get some health tips. Reacting to the question raised as to whether they use social media platforms to access health information, one of the participants said:

I communicate more frequently with my doctor on WhatsApp than physically. Most times after his advice he will still refer me to a Facebook group called ‘Health matter’ to get more tips on how to manage my mother who is diabetic. I also regularly check the Facebook page of the State Primary Healthcare Development Agency to get more information.

The majority of the participants held the same view with some saying their major communication channel with their doctors is social media.

**8.3. If It Has Improved Healthcare Delivery**

Most of the participants in the FDGs and interviews held that although digital media technology has improved healthcare delivery in Cross River State, the improvement has been favourable more to people who reside in urban

areas. They argued that with the sweeping impact of the digital media on healthcare delivery, the state government should liaise with network providers in the state to provide internet services to rural areas for more improved digital healthcare.

Responding to a question on whether digital media technology has improved healthcare delivery across the state, some of the participants said that:

There isn't anyone who can say that digital media technology has not improved healthcare delivery in the state. It has brought about positive improvement but more needs to be done to cover all the nock and crannies of the state. As at today, only people who live in areas with internet service and mobile network have enjoyed this improvement. For this, the government needs to do more to ensure all parts of the states have mobile network so that those who reside in the rural areas can also benefit from the new digital healthcare.

Another participant said that:

From patient - Doctor communication to relationship to administering of medication, digital media have improved all stages. Today, there are some jargons that doctors will speak that patients don't understand, all they need to do is to Google or refer to a mobile dictionary which was not like that before. A lot has changed but there is room for improvement. Digital healthcare shouldn't be enjoyed only by those in cities. Those who don't live in the cities deserve good health too and therefore the government should make it easy by ensuring every part is covered with networks and internet services.

## 9. SUMMARY OF THE FINDING

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The data and findings were analysed using simple percentages as the research was aimed at evaluating the impact of digital media technology on effective healthcare delivery in Cross River State.

The digital media technology has had a broad impact in every aspect of the society ranging from entertainment, education, business, politics, healthcare etc. An evaluation of how much it has impacted the healthcare sector is important in determining how much it is affecting everyday life.

The findings from this study revealed that digital media technology has caused some disruptive innovation in healthcare delivery in the state. While most participants lauded the improvement in healthcare sector owing to the increasing influence of the digital media technology, some opined that more needs to be done to ensure that every part of the state enjoys the improvement by a way of expanding mobile network coverage in the state.

The study revealed that digital media technology has improved Doctor Patients relationship, the effectiveness of Doctor - Patients communication, as well as the administration of overall healthcare delivery in the state.

The study revealed that more people rely on social media pages, online sources, health blogs for health tips and information.

Most participants disclosed that the major communication channel with their Doctors is via phone calls or direct social media messages. They averred that healthcare is now more accessible and effective because of digital media technology.

## 10. CONCLUSIONS

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It is quite safe to conclude here that the exponential growth of digital media has led to the emergence of more efficient, transparent and faster healthcare services in our society today. The internet has opened the way towards new opportunities for healthcare delivery through new health technologies contributing to a superior care quality for patients.

With digital media, the development of medical technology and discoveries in medical science has led to a reshaping of the health sector through the development of medical informatics apps, designed to provide new and more effective solutions and through the creation of new directions for healthcare with profound implications for man and society.

Digital media have made a decisive contribution towards improving competitiveness, increasing efficiency and reducing bureaucracy, thus contributing towards improving the overall health of the population, as the ability to anticipate accelerated changes in the healthcare delivery system has become a strategic resource.

#### *Recommendations*

1. In line with the findings the following recommendations are made:
2. The government should work with network providers to expand the mobile network coverage to every part of the state.
3. Health facilities in the state should set up WhatsApp, and other social media pages to frequently send out health information.
4. Every health facility operating in the state should have a hot line for emergency digital healthcare needs.
5. The existing government operated social media pages should be properly funded and frequently updated with healthcare information.

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