



New Media Technology and Its Application to Broadcasting: A Mini-Ethnographic Study

Ukaegbu Raymond Chimezie

Charles Darwin University, Darwin, Australia

Email: raymondukaegbu@gmail.com

How to cite this paper: Chimezie, U.R. (2022) New Media Technology and Its Application to Broadcasting: A Mini-Ethnographic Study. *Open Access Library Journal*, 9: e9059. <https://doi.org/10.4236/oalib.1109059>

Received: June 28, 2022

Accepted: August 7, 2022

Published: August 10, 2022

Copyright © 2022 by author(s) and Open Access Library Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

This was a comparative study of Cable News Network (CNN) and Television Commercial (TVC) news in their use of convergence technology. In order to achieve this, two objectives and two research questions were developed. The researcher employed the use of qualitative research and data was gathered using direct observation and discussions. The population of the study was all broadcast stations all over the world, however, CNN and TVC news formed the sample for the research. The theory adopted for this work is the technological determinism theory. After the analysis of the results of the direct observation and the discussions, the study found that both CNN and TVC news adopt new media technologies. However, the study also found that while CNN went for highly sophisticated technology, TVC news settled for the basics of convergence technology. The study also found that there are several challenges militating against the adoption of convergence technologies like maintenance and catching up with evolving technology and innovations. Amongst the challenges is the cost of acquisition of new media technologies. The study also found that though adopting is expensive, the benefits are enormous and far outweigh the cost. The study, therefore, recommends that TVC news should up their game by employing more state-of-the-art new media technology equipment and that TVC news should from time-to-time pay a visit to major broadcast stations like CNN to keep abreast with the trend in new media technology.

Subject Areas

Journalism and Communication

Keywords

Mini-Ethnography, Qualitative Research, New Media, Comparative Study, Broadcasting

1. Introduction

The genealogy of broadcast platforms and texts is central to new media technology. It examines the various components of digital computers and convergence media technology. It reveals as well as attempts to tap the precise trajectories of new media systems in order to describe their relationship(s) with democracy in accordance with the Habermasian view of the public sphere [1]. Highlights of the positive and negative potentials and real positions of new media technology [2], indicate that some of the early works of current media studies were guilty of technological determinism, in which the effects of media were realized by the equipment, rather than by tracing the difficult communal setups that control the financing, implementation, and development of any technology in the future.

New media technology has brought great benefits to the society through its various stages of growth [3]. These stages of growth may have been responsible for the series of metamorphosis evident in the broadcasting industry. However, summarizing its attributes in a time-framed manner, Nielsen (2017) [3] described it as a useful fact-check in the evolution of television. In 1900, the Russian scientist, Constantin Perskyl coined the word, Television to demonstrate that while “tele” means at a distance “vision” means a way to automatically communicate and relay pictures [3].

Twenty years after Perskyl’s coinage, the first television station in the globe was commissioned in America’s Big Apple City in 1928 [4]. He further outlines the following facts about the evolution of television. By the 1930s, live broadcast emerged. After the first commercial television debut in World Fair in 1939, the 1950s got regarded as the “golden age” of television. By that time, the word television became useful to the entire invention-the broadcast medium, the transmission technology, the program to be viewed and the projecting/showing device.

As explained by Petersen, the first basic cable network through Howard Huble in the 1980s was commissioned by Ted Turner.

In the 1980s also, the Video Cassette Recorder (VCR) became a house-hold staple. By the 2000s, television had moved from analogue to digital and digital video recorders (DVRs) had changed how and when consumers view television. The emergence of the television had triggered critical assessment from observers. Prominent amongst the observers is Marshall McLuhan. Griffin (2000) [4] notes that the *global village* phrase is among the most memorable reactions that McLuhan coined because of his views about what he thought was how television would impact the world. McLuhan had insisted that the electronic media, especially the television, was re-tribalizing the human race by which he meant that vocalizing instead of writing down views and impressions would turn the human race into an oral tradition age where touch and sound were further significant than sight [4]. As if the worries that made him see the electronic media as pushing citizens of the world back into the acoustic space were not enough, McLuhan heightened his perceived concern about the emergence of the television.

Anderson and Ross (2002) [5] express McLuhan's belief that the type of media technology in use in a society at any one moment has a significant impact on how its members think and act.

Irrespective of McLuhan's misgivings, CNN presents a structure of interest in the 21st century discourse of television broadcast. On the 1st Day of June, 1980, CNN was inaugurated as the globe's first-ever round the clock media organization. They were live on air at about 6 pm Eastern time with a start-up staff strength of 25 personnel based at its head office in Atlanta and her bureau in major cities across the United States. CNN went ahead to modify how the news could be transmitted at permanent times all through the day. During CNN's unveiling, TV news was controlled by three major networks, National Broadcasting Company (NBC), American Broadcasting Company (ABC) and the Columbia Broadcasting System (CBS), and they are once night 30 minutes transmissions. Originally available in fewer than two million U.S households, today CNN is watched in more than 89 million American homes and over 160 million homes globally [6].

Robert Ted Turner conceived the idea of establishing CNN. A tactful capitalist, was born on November 19, 1938, in Cincinnati, Ohio. As a little boy he relocated with his father to Georgia, where his father operated a famous billboard publicity corporation. When his father committed suicide in 1963, Turner acquired the business and extended it. Having inherited a billboard agency, in 1970, he acquired a failing Atlanta TV station that transmits ancient movies and network reruns and, in a few years, Turner had converted it into a superstation. An idea he established, in which the station was transmitted by satellite into homes across the United States [6]. Convergence technology which refers to the combination of two or more different technologies in a single device as noted by Tryon (2009) [7], actually paved the way for CNN to gain her status as a superstation. It adopted an increased broadband capacity and Super HD equipment which stimulates circulation of music, video, and other digital content largely to numerous consumers at the same time with the help of satellites [8]. Murphy (2011) [9] suggests that the use of 6k specialized drones, professional broadcast cameras, advanced IP-switches made CNN an enviable broadcast station amongst its competitors.

CNN and TVC news are two television news giants on two continents, one in North America and the other in Africa. The two stations have come a long way and have broken a lot of grounds by applying new media technology to their broadcast operations. Both have won awards for professionalism in bringing the news to homes. Nevertheless, there has been a difference on how these two stations cover and report the news. With the advent of new media technology, it is expected that news coverage should be a lot easier than it used to be. A typical example of the difference in news coverage between the two stations can be seen in their coverage and reportage of the Persian Gulf war in Iraq and that of the war declared by the Nigeria Army on members of the Boko Haram sect in Nige-

ria at different times.

As reported by Jeremy Norman's History of Information [10], during the gulf war, when the military began bombing, the CNN crew was opportune to report live from their hotel suite in Rashid Hotel via radio, while other broadcast firms were not privileged to do same. This was truly significant as the reports were so raw and unedited. This experience remained a tremendous fit for the 24-hour news coverage and broadcast. TVC news though captured footages of the various military bombings in Maiduguri, Borno State, but that was after the attacks on the insurgents were over.

It is uncertain what roles new media technology played in the coverage of the two incidents by CNN and TVC news. It is also unclear why TVC news was not on ground to bring live and periodic updates from the military operations that occurred in Borno State Nigeria. The researcher therefore carried out a comparative study of CNN and TVC news on how they have employed new media technology in broadcasting the news and other events to their audiences.

The following objectives were established in order to carry out this research efficiently:

1) Determine the Challenges Faced by CNN and TVC News in the use of convergence technology.

2) Ascertain the advantages of new media technologies in broadcasting

Below were the questions articulated by this research to guide the study:

1) What are the challenges faced by CNN and TVC news in the use of convergence technology?

2) What are the benefits of new media technologies in broadcasting?

1.1. Significance of the Study

This will reveal the superiority of CNN's approach to live broadcasting, with an emphasis on promptness and timeliness. Furthermore, the conclusions of this study may increase trust in the culture of new media technology in broadcasting.

It can create a new dimension to the growth of media excellence using new media technology among media practitioners in developing nations like Nigeria. This study may enable the researcher to expand the frontiers of research in broadcasting especially with the use and application of new media technologies. While owners of various media outfits can benefit from the findings of this study. It will further add to the body of literature on convergence technology and broadcasting in Nigeria.

1.2. Theoretical Construct

To achieve this, the researcher adopted Marshall McLuhan's Technological determinism theory propounded in 1960's. The theory is a reductionist theory that believes that a society's technology determines the development of her cultural value and social structure. The word is said to have been put together by Thorstein Veblen (1857-1929), an American sociologist says [11]. Technological de-

terminism has been defined by Smith and Marx (1994) [11] as the belief in technology as a fundamental driving force in society.

Smith and Marx (1994) [11] add that the idea that technology determines social modification which impacts the way individuals' reason and how they relate amongst one another can be described as three-word logical proposition: Technology determines history [11]. Technological advocates believe that you can't stop progress, implying that we are unable to control technology [12]. However, this suggests that we are powerless, and society allows technology to drive social changes because, societies fail to be aware of the substitutes to the standards implanted in technology [11].

The connection between the above theory and the topic of discourse stems from the evidence that the application of new media technology in broadcasting was linked to technological determinism and their acceptance by individuals will surely modify few traditional values. Since the theory is technologically based and the work is centered on application of new media technologies on how the old-fashioned operation of broadcasting may evolve with emphasis on CNN and TVC news. Other theories like Diffusion of Innovation theory could have also been applied to this research work, but the researcher considered Technological Determinism theory most appropriate and necessary for this research.

2. Literature Review

Now that the concepts of broadcasting and new media technology have been defined, the review that follows shall focus on how the media may have been affected and changed through the emergence of convergence technology.

2.1. Influence of New Development on Media Technology

Often new media technology is considered an abstract phenomenon. Keirstead (2005) [13] has created a better picture on applications of computers in broadcasting and cable newsroom. He explains that applying new media technology to television news creation takes readers over the usage of computers and software in the transmission/cable newsrooms studio. His text about television news technology was to assist news production managers cope with technological modification. He has revealed countless ways in which today's reporting is centered around new media technology, and how news reporters rely on complex and varied technologies to deliverer informative, educational, and timely accounts.

New media technology explores how we have been able to understand the role of the computer in various parts of the newsroom. What this means is that the uses of computers are key necessities in actualizing new media in transmitting information in real time. The use of technology in television news production herein referred to as convergence could be traced to 1980 [13]. This was linked to the first transmission of the cable news network, CNN. Since then, journalism has been tied to technology and has thus changed the way things are done. Al-

though means of distributing news preceded the invention of the printing press, it was technology that allured printers to produce copies of documents at reasonable prices, resulting in the development of newspapers.

Likewise, the invention of radio and television led to new and better ways of sharing information with large number of people. Today's television news relies on diverse and difficult but easy to use new media technologies to help correspondents compose exciting and enlightening broadcasts conveyed in real times resulting in live broadcasting. Keirstead (2005) [13] further adds that realizing new media technology in a live broadcasting studio could only be achieved by linking diverse computers and hardware called networking to a transmitter. This in Keirstead's view has opened the way for automation of news production.

If new media technology is a defining phenomenon in CNN, there's a name that much of the credit must go. That name [8] was a pioneer staff of CNN. Sidney's artistry in the CNN story commenced in 2005 when he states that the emergence of satellite television has created a quantum leap in visual communication; its ability to inform, entertain, and above all enlighten not millions, but billions of people. He narrated an ordeal in 2003 shortly after Saddam Hussein's regime was toppled in Iraq. Sidney notes that as a result of that satellite television dishes sprang up all over the city of Baghdad. According to him, one young Iraqi man said that Iraqi wants to see how the outside world lives, how it thinks. An Iraqi woman also remarked that satellite TV is a great way to shape Iraqis, enable them to know the truth about our land and also accord them the opportunity to learn about their past. The lady wished that every Iraqis should have access to satellite television.

Sidney (2005) [8] narrated that the reason he started traveling round the globe was solely with the intention of building the turner empire and spreading the gospel of convergence and new media. Yet when he discovered the power of satellites; a new purpose according to him evolved, enlightening the world's population, and letting them access the new technology now provided.

In a similar vein, Tryon (2009) [7] notes that new media technology has clearly reshaped the home viewing experience as families are drawn closely to happening of events at real times. This he believes has thrown away the close circuit viewing experience popularly known as DVD. According to Tryon, the new format of broadcasting via media convergence is an ultimate experience that thus continues to inform industry representatives and stakeholders in media how the previous technology ended. He is of the view that there is a paradigm shift from the old way to the present-day live streaming made possible via new media technology. He is of the opinion that viewership and patronage has now been accessed by the timeliness of an event or occurrence. That's what the age of new media technology has been able to achieve, Tryon (2009) [7] laments.

Manovich (2001) [14] notes that, when broadcasting was done via DVD or VCD, there could be some manipulations. He believes that computers could be used to create some assumptions of a desire of realism, where documented fea-

tures work together to yield the desired effects.

The researcher disagrees with Manovich (2001) [14] because in new media technology, un-retouched photographic accounts of an occurrence that transpired right in front of the camera are streamed directly to viewers. Manipulations are no longer feasible as events are streamed live while they are unfolding. Such manipulation is what CNN has been able to eliminate.

Dixon (2015) [15] has brought the concept of the dawn of a new era. Where he believes that in the late 1990's, the medium started feeling the profound change melted by new media technology. He adds that this has stimulated a modern technological provision and invention, with a new set of plots, stars, and iconic conventions. At this time, he thought that producing and broadcasting expensive films focused basically on young people with the intention of enticing the major likely viewers while reducing monetary risk was the best. Though, unknown to him, CNN had embarked on a satellite digital mission, which proved his assertion wrong. These technologies often bypass the theatre, delivering prompt films and news to abundance of potential seams ranging from high-definition television sets to cell phones. It has also accorded filmmaking with new tools for and distributing their work to a mass audience.

Keirstead (2005) [13] laments the networking of several computers and other hardware was a significant step in bringing new media technologies to reality and ensuring the efficiency of news production. As explained earlier, this all began in the 1980's when CNN took the lead in rebranding and reshaping the culture of information dissemination. This also points to the fact that if CNN had not taken this lead, we may have remained in the era of closed-circuit broadcasting where information broadcasted are timed, doctored, or edited to suit certain economic class. All this boil down to the fact that if new media technology in television broadcasting has not been made possible there wouldn't have been that dramatic change which paved the way for automation of news and broadcasting globally.

Keirstead (2005) [13] further reveals that in a live broadcasting studio, the activity related to switching among incoming and outgoing sources has been taken over by computer, hence the new media technology.

This research is extremely important because it unveils the key relevance of how the broadcasting industry has evolved rapidly upon the establishment and emergence of new media technology.

Murphy (2011) [9] issued a strong statement confirming the importance of new media technology in repositioning the broadcasting business. Murphy (2011) [9] posits that instructional literature can serve as lenses through which to evaluate cultural issues, such as modern media technologies in this example. This narrative further reveals that tutor texts can instruct us in multiple ways thus demonstrating how cultural convergence takes place in contemporary media. It shows how media users navigate, follow stories and their creators across platforms. And providing us with a model of how a new media reception/production

practice such as CNN can be recapitulated as part of an original commodity product, via cross-platform collaboration.

Murphy (2011) [9] suggests that for each of these modalities, tutor texts are about more than just new media technology. Instead, one sees the merger of peculiar software and hardware forms together, and also changes in broadcast industry practices; one can also see the connection and edge of various forms of representation, radio, television and many more. Throughout this example, the medium of television performs a crucial and cohesive role in containing new form while also providing its old established styles and aesthetic to web serials and anchoring new attempt to address audiences via the web with more familiar programming formats [9].

Olley (2009) [16] investigated the effects of new media and the challenges they pose to Nigerian broadcasting. He used a survey method to collect data in order to describe a population that was too large to observe directly, using careful sampling and the creation of a standardized questionnaire. Although Olley's effort is commendable, the use of a questionnaire is deemed insufficient for his work. Questionnaires are closed-ended in nature and may not provide a detailed explanation of the respondents' opinions.

Instead of a questionnaire, it is strongly believed that interviews should have been conducted in order to elicit detailed information and data from the participants. A field interview with the operators, practitioners, and owners of the various media outlets under investigation would have been ideal.

As a result, gathering data from a group of respondents whose characteristics may have been assumed to be representative of the larger population becomes impossible, particularly in this study. Olley (2009) [16] conducted his research on four Nigerian broadcasting stations: Delta Broadcasting Service Warri, Edo Broadcasting Service Benin City, Silverbird Communications Ltd. Benin City, and the Nigerian Television Authority Benin City.

While I applaud his efforts, I will also point out the gap in his research that I attempted to fill with this study. According to Pike [8], research has shown that the emergence of convergence technology in broadcasting all began in the West: The United States, Germany, and others. Conducting such a study without a comparison of one Western broadcast station may not yield a better narrative. On what basis was he analyzing four broadcast stations without knowing whether they were doing the right thing in Nigeria, had the right technology, and met the required standard?

After all, it was they who invented technology. Based on this premise, this study focused on a comparison of CNN and TVC. It is the best in the world, where it all began, and the best in Nigeria in terms of television broadcasting. The reviewed research study clearly shows that while attempting to study four local broadcast stations in Nigeria in their area of usage of convergence technology in broadcasting, it would have been far more ideal to have had one station from the west to guide the research and yield better results.

2.2. Various Methods of Delivering New Media Technology in Broadcasting

New media technology in digital transmission and mobile devices can be explained as a shift that is changing the face of television and radio from what it has always been since its invention.

These technologies have positioned broadcasting as a mobile media, with the goal of delivering a large number of segmented networks with targeted services tailored to mobile users' ever-changing requests and usages. According to Olley (2009) [16], the ability to share a large number of programs and other specialized digital content to a large number of mobile users at the same time, combined with the hopes that lie in 3rd-Generation mobile networks for consumer interactive services and business models, are all conditions that generate relative interest in the transmission and mobile industries. Olley (2009) [16] adds that new media technologies are the most significant developments in not only mass communication but also broadcasting.

Their features have given them an advantage over traditional media. It is important to note that the majority of the new media that has emerged are all advancements of the old media. Internet, communication satellite, television, digital versatile disc (DVD), moving picture expert (mp3), compact disc read only memory (CD-ROM), web radio, video conferencing, mobile phones, podcasting, and video/tele-texting are some of the ways that new media technologies have shaped the face of broadcasting globally in recent times.

3. Methodology

The Mini-ethnographic approach of research was adopted for this study with emphasis on discussions. Fusch *et al.* (2017) [17] note that mini-ethnography also known as focused ethnography is a research design adopted when a field under study focuses on a narrow or specific area of enquiry. In relation to this investigation direct observation, discussions and field notes were also utilized as data gathering instruments.

The inclusion of CNN makes it possible that the population of this study should be all the broadcast stations in the world. But since the study of such population cannot be done in the time frame of this study, a purposive sample made up of the CNN and TVC news was applied. Given the nature and size of the population, a sample of one respondent each from CNN and TVC news was used. At CNN, the Tour manager James Scott because of his versatile knowledge of all transmitting equipment owned by CNN and also Maladi Olukoya, the Head of Production at TVC news for his vast knowledge on their various equipment and its procurements.

A scene casing approach was adopted as the research technique. It accorded the researcher the ability to engage in a more potential study during the field work as experiential and first-hand information retrieval like looking, touching, discussions and direct observation were applied. It also accorded the researcher

contacts with people that were relevant as data source.

This further helped to narrow the data gathering to the Tour Manager at CNN and Maladi Olukoya, Head of Production at TVC news respectively, who the researcher confirmed were most grounded in the field under investigation. The researcher personally collected all the data for the research through field trip; recordings, interviews, pictures, and first-hand information relating to the study. The researcher also took field notes and directly observed relevant events. The instrument this study was validated by the research supervisor who also vetted the data collection procedures critically. All transcripts gathered from video recordings, photographs and recorded interviews were validated.

3.1. Results/Discussions

The purpose of the field interviews was to elicit more information from respondents at the two stations about the extent to which the stations have adopted media convergence in their daily broadcasting of events. The interviews for this study were not structured, but they covered the following topics: the challenges faced by CNN and TVC news in using convergence technology, as well as the benefits of new media technologies in broadcasting.

3.1.1. The Difficulties in Adopting Convergence Technology

CNN's tour manager, James Scott, was emphatic that any broadcast station that does not adopt convergence technology is doomed. He did, however, confirm that the main challenge of convergence technology, which he believes is the reason some broadcast stations have not fully adopted it, is cost. Mr. Scott stated that acquiring convergence technologies and maintaining them cost CNN billions of dollars. Consider the possibility that engineers would have to travel around the world to correct minor but significant flaws in convergence technology hardware or software. According to Scott, this comes at a high cost.

3.1.2. New Media Technologies' Advantages in Broadcasting

The TVC tour guide confirmed that they do not have the same convergence technologies as CNN. According to him, TVC employs outside broadcasting and uses their Outside Broadcast (OB) van to transmit live video from an event location. However, he stated that this is only possible if they are aware of such an event occurring days before it occurs. This is due to the logistics of moving the van to a new location. The tour guide also confirmed that TVC relies heavily on citizen journalists for news. He acknowledged the risk of accepting materials from untrained citizen journalists and stated that they have dedicated staff members who check the veracity of such materials. He also confirmed that the cost is a factor in the lack of cutting-edge convergence technology like CNN. He bolstered this point by mentioning that the OB van they use is so expensive that a used one costs more than \$200,000 USD.

3.2. Findings

The researcher collected data during the field trip by taking notes, conducting

unstructured interviews, discussions, and direct observation. Text was used to transcribe the recorded interviews, while long notes were used for note-taking and direct observation. The post-field discussions and direct observations have been presented in the form of direct statements and text. While paraphrasing was used to reveal direct comments gleaned from interviews and discussions, the textual presentation revealed direct observations gleaned from field work.

The research found that there are huge benefits for broadcast station in adopting new media technology. The benefits are promptness, timeliness, quality, and Innovation in broadcasting. The research also found that though there are several other challenges like catching up with technological developments. Cost is a huge challenge in the adoption of new media technology. The study also discovered that the costs of both adoption and maintenance are extremely high.

4. Conclusions

New media technology is as a matter of fact the way to go for broadcast organisations willing to meet the ever-growing demand for news based on the many activities going on around the globe daily. However, a lot of care needs to be taken in the acquisition of these technologies especially considering the cost.

Organisations that just jump into acquisition of technology may end up running the organisation under because if you acquire new media technology devices and have no funds to invest in other areas like staff salary, manpower development, infrastructural development, etc., such acquisition may be counter-productive.

That notwithstanding though, the cost of not acquiring new media technology far outweighs the cost of purchasing it. The essence of being in broadcasting is to beam to viewer's fresh news and not stale news. To meet up with its singular responsibility means that broadcast stations need to acquire new media technologies. TVC news was not able to give Nigerians real-time coverage of the military invasion in Borno State because they had limited new media technology unlike CNN which covers various events even in the worse of conditions like the Iraqi war. The difference between the ability of CNN and inability of TVC news was simply new media technology. It is therefore very imperative that broadcast stations must move with the times and acquire new media technological equipment as observed by Mashal McLuhan's theory in order to continue to beam news and other broadcast content to their viewers and listeners in real time.

4.1. Recommendations

In view of the summary and conclusion reached above, the researcher wishes to make the following recommendations:

- 1) That TVC news should up their game by employing state of the art new media technology
- 2) That TVC news should from time-to-time pay a visit to major broadcast

stations like CNN to keep abreast with the trend in new media technology

3) That CNN should play fair in the broadcast industry by sharing some of their new media technology knowledge and equipment with other media organisations

4) That TVC news should be very circumspect in accepting broadcast material from citizen journalists.

4.2. Contribution to Knowledge

There may have been a lot of materials on broadcasting and broadcast productions, however, not many of them have been able to look at new media technology especially from an African broadcast organization perspective. This research work has been able to bring to the fore some of the reasons Nigerians get their news from foreign media before the news are received from our local media. This study places a particular emphasis on new media technology and how that has the tendency to develop broadcasting in Nigeria. The study has clearly indicated that one of the major problems facing adoption of state-of-the-art new media technologies by broadcast organizations is funding and has pointed out that though funding is a challenge but that the cost of not adopting new media technology far outweighs the cost of adopting them.

4.3. Suggestion for Further Studies

New media technology is a relatively new area in Nigeria, yet it is an area that cannot be ignored by broadcast organizations. It is therefore hoped that this research work should be able to stimulate further research in the following areas:

- 1) Internet Security in Convergence technologies
- 2) Timeliness in news reporting
- 3) Broadcast quality

Adoption and management of new media technologies in Nigeria by broadcast organization.

Conflicts of Interest

The author declares no conflicts of interest.

References

- [1] Habermas, J. (2001) *The Structural Transformation of the Public Sphere*. 12th Edition, MIT Press, Cambridge, MA.
- [2] Lister, M., Dovey, J., Giddins, S., Grant, I. and Kelly, K. (2003) *New Media: A Critical Introduction*. Routledge, London.
- [3] Nielsen, P. (2017) Fan Favorite: Radio Listeners Spend 58% of Their Tune-In Time with Their Favorite Station. <https://www.nielsen.com/insights/2017/fan-favorite-radio-listeners-spend-58-percent-of-their-tune-in-time-with-fave-station/>
- [4] Griffin, A. (2000) *A First Look at Communication Theory*. 4th Edition, McGraw Hill, New York.

-
- [5] Anderson, R. and Ross, V. (2002) Questions of Communication. Bedford/St. Martins, Boston & New York.
- [6] Turner, T. (2017) The Columbia Encyclopedia. 6th Edition, Columbia University Press, New York.
- [7] Tryon, C. (2009) Reinventing Cinema: Movies in the Age of Media Convergence. Rutgers University Press, New Brunswick, NJ.
- [8] Sidney, P. (2005) We Changed the World: Memoirs of a CNN Global Satellite Pioneer. Paragon House, St Paul, MN.
- [9] Murphy, S.C. (2011) How Television Invented New Media. Rutgers University Press, New Brunswick and London.
- [10] Jeremy Norman's History of Information (1991) Peter Arnett at CNN Broadcasts the First Live Television Coverage of War.
<https://historyofinformation.com/detail.php?id=4163>
- [11] Smith, M.R. and Marx, L. (1994) Does Technology Drive History? The Dilemma of Technological Determinism. MIT Press, Cambridge, MA.
- [12] Green, L. (1993) Technoculture. Allen & Unwin, Crows Nest.
- [13] Keirstead, P.O. (2005) Computers in Broadcast and Cable Newsroom: Using Technology in Television News Production. Lawrence Erlbaum Associates, Mahwah, NJ.
- [14] Manovich, L. (2001) The Language of New Media. MIT Press, Cambridge, MA.
- [15] Dixon, W.W. (2015) Black and White Cinema: A Short History Book. Rutgers University Press, New Brunswick, NJ. <https://doi.org/10.36019/9780813572444>
- [16] Olley, O.W. (2009) New Media Technologies and Their Challenges to Broadcasting in Nigeria. Department Of Mass Communication, Faculty of Arts, University of Nigeria, Nsukka.
- [17] Fusch, P.I., Fusch, G.E. and Ness, L.R. (2017). How to Conduct a Mini-Ethnographic Case Study: A Guide for Novice Researchers. *The Qualitative Report*, **22**, 923-941.
<http://nsuworks.nova.edu/tqr/vol22/iss3/16>
<https://doi.org/10.46743/2160-3715/2017.2580>