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Research Article

Artificial Intelligence and The Media: Revisiting Digital Dichotomy Theory

Aondover Eric Msughter[1]*, Suleiman M Yaradua[2] and Abubakar Mohammed Babale[3]

[1]*Department of Mass Communication, Caleb University, Nigeria*

[2]*Department of Mass Communication, Bayero University, Nigeria*

[3]*Department of Mass Communication, Bayero University, Nigeria*

***Corresponding author:** Aondover Eric Msughter, Department of Mass Communication, Caleb University, Nigeria.

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Abstract

The adoption of Artificial Intelligence (AI) in journalism and other communication practices brings up long-standing debates regarding the potential of technological innovations globally. Since the 20th century, when McLuhan argued that technologies help extend human capacity, media technologies have been regarded as liberating and empowering. Technologies aided human manipulation of mechanical and electronic processes in the media and communication industries. Arguably, social interactions were enhanced- extending audience reach, expanding scopes of coverage, altering the limitations of time and space, and bridging critical information gaps. Network societies are now better connected. Westernized societies are linked with those in the global south, individuals and media organisations alike are creating content. The resultant gluts of information further intensify the nature of global and social challenges. Given digital divide concerns being accelerated by AI, the Digital Dichotomy Theory (DD-Theory) is proposed towards understanding the inherent global media communication dynamics. This paper examines the fundamental issue of digital dominance in information technologies. The paper interrogates how developing countries have been left behind in the journey towards building knowledge societies because of poor technological infrastructure and systems. In particular, they examine challenges relating to the commodification, instrumentation, and monopolisation of AI technologies and the impacts of this on developing countries. The analysis rekindles the global information order to the past, such as media dominance, information inequality, asymmetrical and imbalanced information flow.

Keywords: Artificial Intelligence; DD-Theory; Digital Media; Information; Technology and Societies

Introduction

Societies need information for many purposes in their journey to advancement. Whether it is for building the right physical infrastructure or for enhancing existing social structures, societies require the right kind of knowledge and information. As the central circulatory system carries oxygen to all parts of the body and expels toxic substances, which could harm the body, the mass media are expected to infuse life-giving information on society, even the most remote members [1]. Access to required information helps dispel impediments on the path to the wellbeing of society, be this ignorance or adherence to discordant beliefs and thoughts. The media are expected to promote harmonious living in society. Technology was meant to enhance media efficiency.

Advancement in Digital Information Communication Technologies (D-ICTs) has heralded the arrival of Artificial Intelligence (AI). However, due to the digital divide across countries and continents, the gains are uneven across the world. As AI-based media communication imperatives are increasing potent aspects of knowledge-driven societies, there is an urgency to advance theoretical insights on the issue towards gaining a better perspective of media communication imperatives, especially about the position

of a technologically dependent nation. Thus, this paper examines AI within the context of Dichotomy Theory to help interrogate the position of digital media communication dependencies. Premised on empirical inferences such as Technological Determinism as pre-existing theoretical frames, the authors argue that technologies may influence media communication imperatives in every society. However, there is a digital dichotomy and often affects the actual media communication outcomes, especially in developing countries.

This new world of 'information chaos' is characterised by a growing global digital divide, heightened information inequities and inequalities, the weaponisation of information, the commodification of data, the instrumentation of knowledge and the polarization and pollution of the information eco-system through digital technologies and social media platforms. It is also an age of algorithmic intermediation, which creates clusters of information and multi-polarity of the digital age and space. The manifestations of extreme dysfunctions of the extant global information eco-system have been described as the 'infocalypse' [2].

Within this context, this paper utilizes the secondary data whereby relevant literature like texts, journals, official publications, historical documents, and the Internet were consulted and analyzed based on the existing literature that has direct bearing to the subject matter. However, the inquiry is strictly limited to data found in scholarly journals, books, the Internet, and libraries, and not anecdotal sources. The method was used to evaluate such findings with other existing literature on the subject. The method helps findings in the works available checks the consistency of such findings and evaluates such results with other findings.

The Context

[3] remarks that the impact of AI in countries, governments, and other stakeholders as well as communication scholars to put all resources and expertise towards meeting AI-oriented digital media communication needs of the society. Given digital divide concerns being accelerated by AI, the need to revisit the Digital Dichotomy Theory (DD-Theory) is important. This paper proposes that this is a better way of understanding the inherent global media communication dynamics. This is so because the basic assumption of the theory is that entities without the same predisposing factors will often significantly vary in the adoption time of current experience(s). Thus, AI does aid media communication realities to play out and affect humanity in such disparities.

[3] observed that the whole gamut of media classifications and applications, as well as operations, seem to be dependent on the available communication technologies. Today, digital media and communication have definitively advanced from basic software to AI. The notion of Sociology-Central in [3] affirms how the development of computers, for example, has increased audiences' spread, and in turn, made it more difficult to clearly distinguish between 'mass media' and 'non-mass media'. This expression relates to the contemporary influences of the new media upon the old 'traditional media.' The concept of 'new' applies to media technologies that have altered media classifications, with great contempt for communication characteristics of the traditional media.

Additionally, AI has advanced media communication reality. Notwithstanding, a regulatory framework is needed. The issue of the digital divide has indeed placed an extra burden on media scholars as well as professionals, and communication policymakers in developing countries. For instance, [4] mentions how old media such as news, television, and radio have a practice of feeding information based on the ground research for their listeners and viewers in places such as Ghana, where radio and television stations tailor niche agenda-driven programs of political parties.

[1] observed that where technology has been efficiently harnessed for the social, economic, and cultural wellbeing of groups and nations, a knowledge society emerges. Media technologies have always been a concern. Sometimes they had been viewed from the wide-angle lens of their facilitation of development communication goals, politics and good governance, the institution of democratic culture, equality, and social justice. At other times, innovations in media technologies are viewed more narrowly within particular sectors, such as particular forms of messages, scope, and nature of communication enabled. The goals in health communication and marketing communication are likewise how to affect desired social behaviors.

Most of the African countries are broadly classified as developing. "As rapidly as technology is developing in the rest of the world, in Africa, things have moved at a slower pace," [5]. The implication is that the global media imperative may have fundamental influences, but media experiences in developing nations are lagging. In this perspective, the position of the digital dichotomy is clear. The theory offers explanations to the power of media communication landscapes, and experiences between developed (invention driven media communication environment) and developing countries (adoption driven media communication environments). This has resulted in varying rates of AI-based digital updates and a 'global village.' Indeed, this may be a global village, but the 'globe' has unequal media communication digits.

It is apparent in the literature that the adoption of Artificial Intelligence (AI) in journalism and other communication practices brings up long-standing debates regarding the potentials of technological innovations for good and evil in society. This, therefore, beams the light on contemporary manifestations of global challenges, though understandably, the Nigerian context. Still, within the context of literature, findings are shadowed by unprecedented global occurrences; the world has been bedeviled with a range of these in recent times. This paper validates the theoretical postulations that stark the double-edged sword that media technologies can be.

Arguably, since the 20th century, days when McLuhan argued that technologies help extend human capacity, media technologies have been regarded as liberating and empowering. Technologies aided human manipulation of mechanical and electronic processes in the media and communication industries. Similarly, social interactions were enhanced – extending audience reach, expanding scopes of coverage, altering the limitations of time and space, and bridging critical information gaps. With these came the potential to shift the balance of power in societies as desirable in democratic societies.

As noted by [1], the potential of media in 21st-century society for good or bad is much higher when computational power is added to mechanical and electronic invention of the past, as done with Artificial Intelligence. Networked societies are now better connected. Westernised societies are linked with those in the global south, individuals and media organisations alike are creating content. The resultant gluts of information further intensify the nature of global and social challenges. The preceding arguments have created an important knowledge vacuum in the literature for this paper to be conceived.

Overview of Artificial Intelligence and its Limitations.

Scholars like [6] have observed that the rapid development of Artificial Intelligence (AI) heralds an era, one of machines or devices that are capable of learning by themselves (machine learning), and of imitating human thoughts. The processes and concepts that relate to AI have been around since the 1950s. The term, AI, was coined by John McCarthy in 1955 and was popularized in 1956 at a research congregation in Dartmouth College in the United States. Furthermore, the United States Department of Defense focused on the development of AI in the 1960s and produced computers to imitate basic human reasoning. [7] remarks that although AI is not new, it has become a technology of immense significance that anyone can hardly predict precisely where it is heading [8].

In this perspective, AI is about systems that can learn and evolve through experience, which would most times carry our specialized tasks in gaming, decisions making and to transform large, complex, ambiguous information into real insights, to solve some of the world's most enduring problems. [9] sees AI as the science and engineering of making intelligent computerized machines that are programmed to closely imitate human thoughts and actions for the purpose of analyzing data to address a variety of problems or execute tasks. It is a computer science field that ensures the creation of intelligent computerized machines which are enabled to perform tasks which normally require human intelligence. These tasks include speech recognition, translation between languages, visual perception, etc.

Although AI is generally a broad term, there are different types or kinds of AI, designed to perform different tasks. For example, there is specialized and general AI. [9] states that specialized AI is AI that is programmed to perform a specific task. Its programming is meant to be able to learn to perform a certain task – not multiple. On the other hand, general AI is not limited to one specific task-it is able to learn and complete numerous different tasks and functions. In general, much of the cutting-edge, boundary-pushing AI developments of recent years have been general AI.

AI is made up of a large variety of subcategories and areas in which they are applied. According to Dudieva and Patil in [6], some of these subcategories and the advanced abilities they offer include:

a. Machine learning: machine learning mimics human learning patterns, to gain an understanding of unstructured data sets and generate intelligent decisions such as medical decision making, Healthcare analytics, Bioinformatics, Emotional detection, Fraud detection, Cyber Security, Procurement optimization, Customer interactions and Optimized gaming.

b. Natural Language Processing (NLP): this permits an accurate analysis of data sets and communication of insights that touch on Communication systems, Legal assistants, Cognitive retail, Personal assistants and Web speech.

c. Machine perception: simulates the human perception of the environment and extracts information from different data sources. For example, medical imaging, Manufacturing, Service industry, financial industry, Autonomous delivery, Transit safety, Geospatial analytics and Childcare.

d. Predictive analytics: analyze historical data to predict future outcomes. For example, Marketing, Data extraction, Social Network analytics.

Therefore, in recent times, AI has risen to the forefront of public discourse because of its significant influence in the areas of cloud computing, big data, the Internet of Things (IOT), virtual reality and its potential to bring new possibilities for global development [10]. AI is already transforming web search, advertising, e-commerce, finance, logistics, media, and several other areas. The target of AI technology is to provide systems that would enable human-like interactions with software and provide decision-support for specific tasks [11]

While AI is perceived as a cutting-edge technology for global development, there are fears [12]. There are positions that AI is highly likely to be a threat to people because of its features of performing activities that were in the past, a preserve of humans thus, there are fears that it could replace teachers, engineers, lawyers and it could be weaponised for social control. Similarly, [13] notes that a number of valuable jobs, currently done by humans such as examining security video to detect suspicious behaviors, monitoring traffic flow and offences, moderating online posts, etc. can be done swiftly by AI technology, which means humans may very soon be replaced by [13] maintains that although AI is a transformative technology of significance in the history of mankind, the transformative characteristic could both be for good and bad reasons.

[14] reinforce the fear of AI to include "mass unemployment, concerns about super-intelligence, putting the power of AI into the wrong people's hands." Again, [9] notes that there are bound to be new concerns over ethics, economics and safety regarding AI innovations. [15] notes that "Progress or nightmare? Some worry about the emergence of job-destroying intelligent robots, or even a conscious AI that would replace humanity. While others rather see a new possibility of progress for humankind, sorting out the truth, between fantasy and reality.

Although AI technology is very effective for certain specific tasks, it is still limited and far from matching the highly diverse cognitive abilities of humans. There are still deficiencies in AI technology. For example, virtual assistants such as Orange's Django, Amazon's Alexa, etc. are unable to respond to commands using natural language yet, although this is surmountable in the not-too-distant future. [16] re-echoed some of the limitations of AI to include data labeling, which has to be done by humans, explain ability problem, generalizability of learning and bias in data and algorithms, all of

which would require human assistance for now. Buttressing the same point of AI limitation, disunite (2019) observes that there are already algorithms designed to differentiate between human and AI-generated content and stories.

While there are skepticisms in some circles about the future of AI, there are others who are optimistic about its unimaginable potential. AI is making traditional practices easier, smarter, faster and reliable in performing tasks in various sectors which are accompanied by increasing adoption by Chief Executives globally. Deloitte in Disunite (2019, p. 38) notes that "those who have already begun adopting and using cognitive and AI technologies are highly enthusiastic about the role of these technologies in their companies, both today and in the future." New York Times no employs Conversation AI to auto-block abusive comments before they are vetted by their human moderators.

Conceptual Framework on Digital Dichotomy

Digital dichotomy simply refers to the digital divide. It is the center of the conceptual frame of this paper. It was hitherto referred to as 'technological divide.' As technologies have progressed into the digital phase, the divide has expanded more into a digital dimension, hence the term 'digital divide.' It has been the defining characteristic of the ongoing discussion between developing and developed countries. This is as a result of global media being a huge empire built on several years of inventions and innovations that have in turn been consistently improved upon. This technology remains dominated by the West (the large information-developed Northern hemisphere).

Moreover, according to [3], many nations have bemoaned the information flow disorder and the misuse of Western media's technical prowess against developing countries at one time or another. This position was largely termed the New World Information and Communication Order (NWICO) debate. The international media, many of which are based in Europe and North America, as well as modern Asia are believed to have the capacity to influence the media outcomes of developing societies, mainly in Africa and South America.

Within this context, scholars like [17] mentioned how communication at the international level comes with many consequences. Some of these consequences arise because of some imbalances, news manipulations, and sometimes, misrepresentation of some nations and people in the media systems of others. Corroborating this, [16] observed that in 1973, governments of non-aligned nations met and discussed media and information flow issues, suggesting ways to counter the real or perceived imbalance.

Based on the foregoing, there is an apparent digital dichotomy. The global digital divide is not denied, except there is a feeling that it is not a very valid point that can devalue the role of digital technology in much of modern existence [18]. The global divide describes the unequal distribution of information and communication technologies across nations. It has become a description for the information-have, and have-nots, although, many of these positions are complex to understand. In the words of [11] argued that within academic circles it is well established that the digital divide encompasses more than physical access to D-ICTs. It is also a function of how D-ICTs are used. It is crucial to develop policies and programs that would bridge the global digital divide through D-ICTs.

For instance, former United Nations Secretary-General, Kofi Annan agrees that the digital divide is a serious issue, Annan's successor, Secretary-General Ban Ki-moon, admits, and leaders of the World Bank think so too. President James Wolfensohn, former World Bank even described the divide as "one of the greatest impediments to development." However, the significance of the digital divide has been challenged on several occasions, like Bill Gates thinking that the digital divide deserves no special attention because it is simply a symptom of economic disparity across nations, and thus the lack of access to information technologies in developing nations merely reflects the poverty level of those nations. Gates at a conference on the digital divide said, "most of the world doesn't have cars, but we don't talk about the auto divide." Steve Jobs, co-founder of Apple, reiterated the views saying that the so-called "digital divide" is "just a new sticker that people use to cover up a more important word: poverty."

In whatever point critics look at it, the significance of the digital divide becomes apt when culture and media orientation of audience from a technology-adopting environment fail to key into the original intentions of inventors, as compared to audiences from a technology-inventive environment like the United States. Again, the digital divide becomes a more serious issue when the economic and political policy, legal framework, and infrastructure of developing technology-adopting nations fail to meet up with international standards, and best media-communication practices (Mojaye & Msughter, 2023).

The essence of digital technology is what prompts the conviction that the world is "truly" global. Yet some scholars are still skeptical that the export of digital technologies has not fully bridged the gap between developed and developing worlds, because the hitherto less developed third world has not been able to conquer attraction to media contents of the West [19].

Within the analysis of Technological Determinism also, the generic nature towards understanding how technologies is not just the base for mass communication, and contemporary mass media operations, but also how changes in technologies are determinants for changes in society, and respective media thereof. In other words, the theory applies to the generic influence of technology on humanity [19]. The theoretical postulation of the Media morphosis on the other hand outlined towards a framework for understanding the constantly changing practices, and application in the media industry that can only be attributed to technology, which is hardly attributed to anything other than the technologies employed. As observed by [20] Marshall McLuhan postulated the Technological Determinism Theory in 1970 toward predicting and evaluating the role of all technologies. The explicit position relates to how technologies have been and are expected to transform media organization, and experiences.

Thus, these theories appear to be of the same continuum. While Technological Determinism is about the sociological implications of technologies in general, Media morphosis is particularly the implication of technologies to media convergences, and the opportunities for dynamic media orientations in the new, and conventional media [21].

Therefore, the importance of technology to society as well as the mass and the new media is apt. Moreover, the role of technologies in the changing, constantly improving, but also diversifying forms of contemporary media, and communication means these theories are relevant to this discussion. The basic assumptions, implications, and relative applications of information communication technologies justify this comparative analysis of the operational differences of the new and traditional media, especially across societies at varying levels. For example, [22] corroborates that 60% of teachers across the world are not actively going to deal with D-ICT; just as besides 95% of students are not actively going to school, "digital mentoring" remains a key element for quality in education- lack of such digital aspects to education makes "10 points difference in learning within a country (micro-regions)."

The Realities of Digital Dichotomy Amidst Artificial Intelligence

In the case of the developing world, most of the advanced nations are fast employing legislation towards catching up with the uses and applications of the new media, amidst or without synergies with the traditional media. Another flashpoint is in the area of investment. Governments and the corporate, or civil society in most developing countries, are yet to call to question the urgency of digital technology, let alone understand the scientific cost that is involved over time [3]. The advanced world continues to enjoy and export to the digital developing countries. Satellite technology, for example, which tends to depend significantly on digitization, is constantly being maintained and researched by the developed world [23].

Already, the Telecommunication Development Bureau (TDB) of the International Telecommunications Union is advocating for worldwide network relative to understanding, and collaboration among policymakers, and regulators prefer to call "disruptive" or "destabilizing" technologies. Others in the developed world seem to favor the term "transformative" technologies. Thus, technology is currently being deployed in almost every facet of our most recent civilizations, and modern life. In this perspective, complex mobile networks such as 5G are heralded along with increased technical and human operational intricacies. As such, the developing societies would need to catch up in terms of not just computational intelligence, but also perception intelligence, and cognitive intelligence [24].

Similarly, regarding digital dichotomies, the adoption of ICT is seriously accelerating. The diffusion rate is rapid but also leaves more gaps and or consequences across societies with varying levels of development. As noted earlier, theoretical assumptions that enable sensible assumptions about contemporary media communication do exist. However, instances of proportional frame of reference to new media and communication such as Technological Determinism Theory are so far limited to understanding the spread, and influences of technology, and far less about what has, or can hinder or limit the overall benefits of Digital Information Communication Technologies D-ICTs. This is where DD-Theory fits in as a propositional frame of reference towards making improved technology and relevantly improved D-ICTs. Indeed, DD-Theory stands relevant as a new theoretical frame of reference for appraising the increasing global media communication imperatives [25].

Besides, the status of technology in development is mainly accelerating and concentrated in developed wealthier nations, such as the United States, China, and the European Union. New media realities in developing societies, such as media self-learning, self-controlling, and self-communication stand-alone intelligent system [22] would demand rapidly improved understanding, or relative media-communication dichotomies across the world be enabled.

Entities without the same predisposing factors will often significantly vary in the adoption time of current experience(s). Adoption is not just due to capacity, but also time lapse-effect in the spread of invention orientation, and practice. This perhaps may be the reason why [26] concluded that a more limited form of globalization might emerge just as there is a tendency for under-developed and developing societies to over-depend on the so-called "world superpowers" for their protection. In line with the relative conclusion, [26] notes that the operational meaning of "superpower, advanced country", has to be redefined by scholars, political readers, media practitioners as well as knowledge-driven policymakers.

In this direction, it is imperative to collaborate and improve global digital media-communication experiences. Aspect such as technological algorithmic innovations are needed at varying levels across nations, and journalism professionals, need to improve towards prevention or limiting hate speech, enhancement of fact-checking mechanisms, ethical encryption media practices among other merits. Irrespective of the ongoing advancements in network amidst digital dichotomy, such global D-ICTs conscious and cautious collaboration can enable better learning among security operatives, digital rights literacy, and relative laws, as well as reasonable accountability from social media providers, and users.

Conclusion And Recommendations

This paper examines the fundamental issue of digital dominance in information technologies. The paper interrogates how developing countries have been left behind in the journey toward building knowledge network societies because of poor technological infrastructure, and systems. In particular, the paper examines the challenges relating to the communication, instrumentation, and monopolization of network technologies, and the impacts of this on developing economies. This analysis rekindles the global information order of the past, such as media dominance, information inequity, asymmetrical, and imbalanced information flows. This paper proposes a new way of addressing the extant inequities and inequalities.

This paper postulates that once there are significant differences in the predisposing factors of society, there will be digital technology adoption differences that would occur. Such difference will not be just due to financial, and physical capacity, but also due to time lapse-effect in the spread of invention, orientation, and practice(s).

Again, what makes a village? The world is not truly a "global village" as regards the dictum by McLuhan, and it will be difficult to be because there will always be a digital dichotomy between entities. There exist forms of a digital dichotomy because of the following reasons: the adoption difference(s) in previous technologies; dynamism in cultural, economic, political, and religious systems of entities across the globe; the time and space lapse between invention(s) entities, and adoption entities. Mere resistance to change, change cannot be forced but persuaded.

There is a digital dichotomy that places developing societies on the side of playing catch-up, governments, and citizens must be aware, and active in the ongoing digital technological imperatives. Besides, governments in many nations still hinder, and or censor global and local information. AI may be taking undue advantage of such unfortunate dynamism of improved digital communication. The paper points out that this is not about the future of media communication in developing nations or states, but for the overall advantageous possibilities, and convergences of the 21st century.

This paper concludes that in a global media scenario, developing societies cannot afford to significantly lag. It is good that developing countries with huge human and natural resources should be challenged to be on the information superhighway. This may serve better than otherwise. Also, this is expected to harvest more towards development. However, research, and training in media professionalism, and computing (programming, hard or software engineering, internet security, among others) are strongly recommended towards maximization of the convergences, and synergies of media forms. Digital technologies depend on excellent software programming and networking.

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Conflict Of Interest

None.

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