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Posters and Development: A Case Study of Cell Phone Posters in the Rural Congo

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Abstract: One of the benchmarks of the information age often forgotten is the proliferation of posters or billboards in and around workplaces, neighborhoods, airports, shopping centers, restaurants, theaters, libraries, schools, etc. More interestingly, through cell phones, posters are rapidly entering rural areas in developing countries. Although these posters come with specific messages and graphics – continually upgraded and tailored to people's attention -- they hardly undergo scientific inquiry in circles concerned with information and communication technologies [ICTs]. The lack of attention raises questions on the role of information systems and related wireless devices being deployed in developing countries. The present paper aimed to canvass cell phone posters and unbundle the underlying practices and routines. As well as positioning posters at the center stage of ICT research, the present paper applied critical discourse analysis to inquire into ways in which development was represented or affected among populations in the rural Congo. The paper determined that posters were not centered on local populations and their day-to-day struggles/needs and that the information conveyed on posters was not geared toward the development of the world's poorest. The paper crafted some paths for future work in ICT fields and cell phone bodies of work.

Keywords: *Cell phone, development, poster, billboard, document, visual research, discourse analysis, social practice.*

1. Introduction

Posters or writings on artifacts have been furnished by humans since time immemorial. No product, business, or charity enters the public domain without supporting/campaigning posters or billboards, and cell phones are not an exception. Billboards have been used enormously for greater access to healthcare among patients (Elrod & Fortenberry, 2018; Fortenberry, Elrod, & McGoldrick, 2010) or for business efficiency (Taylor, Franke, & Bang, 2006). The advent of cell phones has brought added value to human activities/products, including messaging on billboards or posters. Indeed, due to their (wireless) ubiquity, cell phones are presented as an ideal tool for advertising (Peters, Amato, & Hollenbeck, 2007). However, a major gap exists between research into ICTs, more particularly cell phones, and the posters related to cell phones and ICTs. The three most important factors account for this gap. First, posters are commonly assumed to be the province of advertisement research. Schwab (2015) asserted that advertisement is no less than a profit-seeking endeavor. The second most important factor resides in the fact that writing, the central component of advertisement, is something generally relegated to literary work (Prior, 2003), which falls within non-ICT research.

An ICT researcher tends to regard posters along with their writings as foreign, faraway entities. The third and last factor eclipsing posters concerns graphics, an increasingly important component of posters. While graphics are becoming central to the design and display of modern writing for posters and similar documents, they still enjoy little to no critical discourse analysis. Indeed, graphics are seen as nothing but a feature of information display or visualization (van Biljon & Osei-Bryson, 2020). Posters are taken to be the tools needed for the esthetics of data or information display. Nonetheless, a domain that might motivate ICT researchers to rethink the place of posters is that of public policy and the campaign industry (Howlett, 2019). Of the essence here is the idea that public policy and campaign industry use posters with the goal to specifically yield social, behavioral change in a given society or community alongside varying policy areas (Walker et al., 2020). While information posters are being associated with behavioral change regarding policy goals, the dimension of advertisement more precisely mass consumption still persists behind the rationale of information posters.

Research Questions and Aims: Targeting cell phone posters, this study used critical discourse analysis to unearth the social practices, power relations, and representations concerning development. To this effect, this study addressed two research questions: **1.** Do cell phone posters produce development in rural areas of the

Congo? **2.** Do cell phones posters improve the living conditions of rural populations? Living conditions refer to easy access to human basic needs such as water, shelter, food, clothing, and health whereas development covers a broader scope of human life actualization (details below). While the above questions imply a yes or no answer, they go as far deep as unraveling the underpinnings behind the answers given -- namely behind the *whys*, *hows*, *whens*, *whats*, *whos*, etc. regarding development in that location. Two aims of the study were stated, namely to: **1.** Inquire into ways in which cell phone posters generate development in rural areas of the Congo. **2.** Inquire into ways in which cell phone posters give voice to rural populations and relay the lived experiences of these populations with respect to cell phone posters and development. One way that can be most helpful to picture the research questions and aims stated supra is with the idea of violence, a phenomenon unfortunately commonly seen or lived in modern societies.

Cell phone posters just like any document (e.g., graffiti, messages, pictures, news, statements, etc.) can produce violence in a given community or neighborhood, based on the messages/discourses conveyed on them intentionally or unintentionally. To take this point even further, technology just like any entity/agency (e.g., airport, port, school, military barrack, railroad, etc.) can produce or be a theater of development or underdevelopment, based on how the practices surrounding these entities are being handled in a given society/nation, intentionally or intentionally. The key is, per discourse analysis, not to consider documents/items as taken for granted because documents harbor or cover specific practice/power/role/routine (details below). Equipped with the research questions and aims listed above, the present study ascribed to cell phone posters the role needed to gain the most information out of them. Put differently, the more relevant information is gained as regards cell phones the more effective and efficient can be the management, design, and implementation of cell phone devices and services. The paper used materials of a case study borrowed from Cibangu (2016) dissertation. Like any document, cell phone posters are not neutral, the paper brought them to the foreground of ICT inquiry to unveil the practices and agendas behind the dissemination of new ICT devices.

Problem Statement and Significance of the Study: One area displaying the significance of this study stems from the paucity of inquiry into ICT posters as well as the concept development of the world's poorest (Avgerou, 2017; Qureshi, 2015, 2017, 2020; Unwin, 2017). Claims of ICT for development have been made, but the development of the world's poorest remains sketchy and the increasing uptake of social media has further blurred the development of the poorest populations. As R.F. Malaquias, F.F. Malaquias, and Hwang (2017) wrote, economic development matters, but, more so does social and human development. Not without merit, some ICT analysts have advocated for an integrated approach toward (Alderete, 2017) or inquiry into ICT potentials or threats to people's development. A thorough inquiry into cell phone posters constitutes a contribution to an integrated view of ICTs because cell phone posters can occult social practices and powers unconducive to development. While posters are endemic in modern-day societies, they are not the object of a specialized, discrete discipline or literature. Another challenge is that posters are so pervasive that they do not come as stand-alone products, but as part of an activity, technology, business, game, etc. This is mainly because of the message conveyed on posters, which might come and disappear with a given activity or event, such as 2016 Summer Olympics Rio de Janeiro (Brazil), 2014 Winter Olympics Sochi (Russia), 2018 Winter Olympics in Pyeongchang (South Korea), 75th Session UN General Assembly 2020 (New York, USA), 23rd International AIDS Conference Virtual 2020, 2018 FIFA World Cup Russia, etc.

Still another challenge comes from cell phones. Because cell phones are now fitted with multiple functions or technologies at the same time, they have become the shortcut for and/or the entry point of a vast array of technologies such as camera, clock, compass, flashlight, calculator, recorder, music player, TV, GPS, etc. This challenge is compounded by the fact that the fitted technologies can and should be studied in connection (confusion?) with cell phones. More interestingly, for rural populations cell phones might be the entry point to posters. Thus, for these populations, the role of posters cannot be severed from cell phones. Cell phones represent the foundational context in which posters are embedded. This is true also of other technologies listed above, which are beyond the purview of this paper. It can be said that the central role of cell phones explained here is true of individuals born in the digital era in developed countries. These digital-age-born individuals have been exposed to and/or familiarized with certain technologies only through cell phones. For the generations of these individuals, and rural populations are one of them, it would be unrealistic to separate several new technologies from cell phones. Besides, it bears underlining that ICT fields have barely engaged

with the decades-long discussions held about visual research, textual objects, or documentary materials (Prior, 2008, 2011a, 2011b; Rose, 2016).

One reason for this disregard might be for example that in the aftermath of the seminal work of Otlet (1934), published about the concept book as the document, most information research literature tends to refer to the term system or document for cataloging and organizing information in libraries and associated services. This means that studies of documents are undertaken primarily for bibliographical objectives, to borrow a pertinent description of Rayward (2014). By the same token, it needs to be clarified that upon closer examination Otlet's tenets imply numerous social topics deserving of scholarly attention (Cibangu & Hepworth, 2016). To clarify, this paper was not advocating the study of social topics apart from the concept document. Evidently, the main concern voiced in information studies about a document or visual systems was not about deconstructing, disaggregating, or shedding light on the concept document and underlying social episodes or tendencies, but rather about cataloging and organizing documents on library shelves or in like manner (Rayward, 2014). It follows from this that posters or billboards are information systems that escape scientific inquiry among information research outlets. The social practices or contexts in which posters are embedded remain in large part unknown and unaddressed in information research. Yet, as Case and given (2016) reminded us, the endeavor to look into a context's components such as geography, time, situation, and culture that shape people's experiences and their worlds in using the information or ICTs provides a researcher with a holistic approach toward the researched and the world thereof.

It becomes increasingly imperative to study the contexts or worlds in which information systems are rooted, and cell phone posters or any documents or visual systems should not be an exception. As is now clear, this paper sought to bring cell phone posters and development to bear on information systems or ICTs discussions. As well as completing an in-depth analysis of documents or systems, the study peered into ways in which cell phone posters were part of the social patterns and practices surrounding cell phones in the investigated area. This implied a rethink of the notion of document or system in information systems or ICT studies to unwrap the practices or routines, as Silverman (2016) suggested, found in the cell phone era. To preempt any confusion, this study was not saying that bibliographical studies bore no relevance to information systems/studies and the world, but rather they did not fit within the remit of the research questions and aims stated in the inquiry at hand. The point was to highlight the view needed in information systems research that the concept document or, as some would say, the visual is not separate from, but rather integral to social reality (Rose, 2016). Such an understanding opens novel research paths wherein documents are part of the everyday lifeworld (Prior, 2011). The everyday world of information systems has become a focal theme of information research in the last few decades. So this study inquired into cell phone posters as information systems being used or in action in the rural Congo.

Clarification of Terms: Four key terms bear attention here. First, the word poster was defined as a large, usually printed placard, bill, or announcement, often illustrated, that is posted to advertise or publicize something (http://www.thefreedictionary.com). In this study, a poster was taken to denote a material containing specific information and displayed in a public or community space to advertise or announce something. Incidentally, a poster may be large or small, depending on the message being posted or the space allowed. While billboard and poster are interchangeable terms, this paper kept the word poster for consistency's sake. Also to clarify, this study was not by any means research of graphic design (Noble & Bestley, 2011), video or multimedia (Marion & Crowder, 2013), medical diagrams, maps, movie posters, artistic representations, graphics (Rose, 2016), and the like. Rather the study aligns with the social science expertise of information research to unpack the human, managerial, organizational, or social implications of specific ICTs (i.e., cell phones and cell phone posters) in the selected area of study. Second, development is a concept in large part associated with the spread of cell phones among disadvantaged and low-income populations (Aker & Blumenstock, 2015; Unwin, 2009, 2017).

However, while the term development has gained popularity among a whole host of analysts, it has received different meanings from different researchers. The English word development comes from the French word *développer*, which comprises two particles *de- envelopper*, which means: to unroll, spread out, unwind, unwrap, expand, unfold, etc. (https://larousse.fr). Social science literature is shown to engage five key meanings assigned to the word development: (1) psychological, which entails the progression of human

personality (Lerner, 2011), (2) philanthropic, the most ref)red to in ICT studies and cognate disciplines, which realizes works of a humanitarian or small-scale and managerial nature conducted particularly in rural areas of developing countries (Kleine, 2013; Unwin, 2009, 2017), (3) urbanistic, which deals with houses, transportation structures, energy and water supply, facilities, etc. (Adams & Tiesdell, 2012), (4) economic, which supports selected statistical indicators, for example: health care, GNP, currency, capital, GDP, income, etc. (Weil, 2016), and (5) journalistic, which indicates specific facts, accounts, stories, events, etc. (*The Oxford American Dictionary,* 1999). All the same, mounting literature tends to uphold a holistic view of socio-economic development (Sen, 1999, 2009, 2012) – due to the wide-ranging facets pertaining to the phenomenon development. It was thus little wonder that this study took the development or socio-economic development of the world's poorest to be an integrated, holistic endeavor to unravel and ensure a fuller realization of individuals and societies (Sen, 2012). The definition is intended to best capture the daily struggles of this paper's selected population/region. This implied that the terms human flourishing, prosperity, development, and wellbeing were interchangeably considered in this study.

In this respect, the paper went past the concept of development as a mere accomplishment and improvement of economic metrics (e.g., GDP, GNP, income, etc.). Worth noting here is the fact that for clarity's sake this study made use of the word development in place of several variants present in social science literature such as social change, sustainable development, economic development, social impact, and socio-economic development. Also of note is the idea that this paper used the umbrella term information research or information systems to indicate the fields, systems, or practices that deal with the management, uses, or processes of ICTs (Cibangu & Hepworth, 2016; Hjørland, 2014; Robinson & Karamuftuoglu, 2010; Walsham, 2017), and more particularly ICT4D [ICT for Development] (Avgerou, 2017; Heeks, 2018; Unwin, 2009, 2017; Qureshi, 2015, 2017, 2019, 2020; Walsham, 2017). The term ICT4D has become the rallying point of ICT research and products involving a broad scope of specialties. This does not mean that both concepts information research and information systems are synonymous or arise from the same research. Information research is a kind of research that looks at information as the superhighway of economic growth (Röller & Waverman, 2001) and related goods while information systems.

Avgerou (2017) conducted research that regards systems/corporates as the end-product of economic growth (details below). It follows that both lines of research converge in ICT4D and that the development of information flow and/or that of systems/corporates cause the development of the world's poorest to be left unaddressed/secondary. This study argued for better management (i.e., design or implementation) of information advertised or displayed on cell phone posters. The third key term needing clarification after development is technique. The technique was regarded in this study as a procedure whereby a given task was achieved as part of the research being carried out. The fourth and last term to clarify applies to capability, which was considered in this study (details below) not as a mere ability to have or delighting in a thing or things possessed or produced, but rather as the extent of actual opportunities enabling a society's members to live better and fuller lives (Sen, 1999, 2008, 2009, 2012). The word maldevelopment is thus employed in this paper to signify a failure, impairment, or lack of or a barrier, hindrance, or obstacle to people's better and fuller lives. In addition to a conclusion, the rest of the paper is structured around five major topics: (1) literature review, (2) methodology, (3) findings, (4) discussion, and (5) limitations.

2. Literature Review

In the last few decades, the phrase literature review has been having a considerable vogue in textbooks (Babbie, 2021; Bryman, 2016). A literature review untangles the trends adhered to and the gaps left in a given body of works. While the concept poster has yet to emerge as a subject of research in information-related literature, it falls under ICTs, a theme broadly used to signify new digital devices, such as cell phones, laptops, Kindles, etc. ICTs have undergone scholarly scrutiny (Alderete, 2017; R.F. Malaquias, F.F. Malaquias, & Hwang, 2017; Qureshi, 2011, 2012, 2015, 2017, 2019; Samoilenko, 2016; Samoilenko & Osei-Bryson, 2014, 2017; Walsham, 2017) under the banner of eight overriding traditions or trends not necessarily mutually exclusive: (1) micro-loans or credits, (2) small enterprises, (3) social mobility or networks, (4) market prices, (5) m-banking, (6) GDP and cognate metrics, (7) health informatics, and (8) policies or regulations. These traditions have also implied concerted efforts toward ensuring somehow the wellbeing of targeted populations. The goal of these traditions ties in well with the aims stated in this study, namely to inquire into (1) ways in which

cell phone posters produce development among rural populations and (2) ways in which cell phone posters give voice to rural populations and relay the lived experiences of these populations about development.

Eight Overriding Traditions: The first overriding tradition under the banner of which ICTs were being scrutinized touches on micro-loans or micro-credits (Aminuzzaman, Baldersheim, & Jamil, 2003). Micro-credits tradition is a tradition whereby the poor are lent small credits for them to be able to undertake some services and earn small-scale savings. The typical example of a micro-credit project is that of Village Phone in Bangladesh wherein rural women were granted micro-credits through Grameen Bank (Aminuzzaman, Baldersheim, & Jamil, 2003) to allow them to sell cell phones and connected services and thus save small-scale earnings. Village Phone was one of the first projects that drew the attention of researchers and scholars to the developmental contributions of cell phones among rural communities. Created in 1981 with the idea of micro-loans bank services for rural populations in Bangladesh, the project evolved during the mid-2000s into cell phone-oriented micro-loans offered to the poor. Thus, micro-credits were or could be publicized on posters as a means or advertisement of development for the poor. The second overriding tradition based on which ICTs were conceptualized regards small enterprises. Small enterprises tradition teaches that cell phones enable individuals to launch or run small enterprises (Donner, 2006; Ilahiane & Sherry, 2012), revolving around the sale of specific items, for example: potatoes, clothes, grains, etc. So, posters would serve to announce or promote the sale or service of specific items.

Third, social mobility or social networks tradition conveys the belief that with the rapid expansion of social media forums cell phone posters can spur development among the poor through pro-poor advertisements placed on those sites. The idea is that just like cell phones or any communication means (Molony, 2008; Smith, Spence, & Rashid, 2011), cell phone posters (should) involve social networking, interaction, and communication pertaining to the poor. Hence, posters (would) become a channel of development among the poor. Fourth, market prices alternately known as market efficiency tradition (Aker, 2010) contends that with the information on the price of goods being communicated between traders across space and time, cell phone posters can reduce the information asymmetries and the costs incurred during transactions and travels needed to acquire those goods. One outcome of this trend is the advent of the market and entrepreneurship projects run in developing nations by governments, multinational firms, and social agencies (Rashid, 2017). The idea is that just like cell phones, cell phone posters can serve as signposts of the most cost-effective prices and transactions. Fifth, the m-banking tradition (Shaikh & Karjaluoto, 2015) is a tradition most celebrated in recent years among rural or low-income populations, especially in Kenya, Africa. M-banking tradition is premised on the principle that through cell phone keyboards the poor are able to send and receive money as well as to make transactions. The typical example often referred to in cell phone research in terms of m-banking among the poor is that of M-PESA (meaning: mobile money, in Swahili, the national language in Kenya and several countries of East Africa).

Sixth, GDP and associated metrics tradition is perhaps the first academically proven testimony (Waverman, Meschi, & Fuss, 2005) to the link placed between economic growth and cell phones or ICTs (Alderete, 2017). Authors of this tradition and accompanying indicators have argued that the boost of GDP, GNP, and several economic metrics driven by cell phones took place in a much shorter span of time than that spawned by landline telephones in Western Europe in the 18th-19th centuries. The tradition is best exemplified by a research series (Coyle, 2005; Goodman, 2005; Gough, 2005; Samuel, Shah, & Hadingham, 2005; Waverman, Meschi, & Fuss, 2005; Williams, 2005) sponsored by Vodafone Group or Vodafone.[1] As noted earlier, the key claim of this research series now widely accepted as landmark research into the economic effects of cell phones in developing countries is that ICT- or cell phone-driven economic growth is far less expensive and faster than the growth generated by landline telephones in Western Europe. As Coyle (2005) observed, in developing countries, mobile communications are seeing growth at a speed much faster than in developed countries, with the role of cell phones coming into effect in less than 10 years (see p. 3, see also Goodman, 2005, p. 55; Gough, 2005, p. 2; Waverman, Meschi, & Fuss, 2005, p. 11). The reason for such an accelerated rate of economic development and investment is that, as Waverman, Meschi, and Fuss (2005) clarified,

[1] A multinational cell phone company founded in 1982 in Newbury, UK, and headquartered in London (https://www.vodafone.com) -- to investigate the effects of mobile phones on people's development in developing countries, more particularly in Sub-Saharan Africa.

telecoms investment curtails interaction costs, extends market opportunities, and broadens information movement, unlike lined telephones that take longer and cost huge sums to physically reach every home and firm. As is now apparent, the investment in and the benefits of ICT networks presuppose a strong dimension of advertisement and related mass distribution of ICTs.

The present paper aimed to reverse this advertising dimension to drill deep into the processes (i.e., posters) used to spread cell phones. The potential of cell phones for development effects in developing countries is claimed to be faster and cheaper than the potentials of fixed-line telephones in high-income nations. However, the Vodafone series has raised a number of all-too-often forgotten questions regarding cell phones in developing countries. In other words, the Vodafone series study is known more for the rising adoption of cell phones than for the warnings made against biased or lax research into ICTs or cell phones. One potent criticism was, for example, about the conceptual framework or more exactly the manner in which cell phones were being transplanted from the West to the rest of the world, especially to infrastructure-deficient areas of the world's poorest. As Gough (2005) warned, cell phones that are claimed to have stunning effects enjoy loose research and little scrutiny, and that uses of, and more specifically, views held on and/or values assigned to cell phones in developing countries differ from those found in developed countries. However, due to the mounting popularity of cell phones the criticism raised has escaped and still does the attention of cell phone researchers and designers. Perhaps not surprisingly, Gough's (2005) remark is one of the least cited and known accounts of the Vodafone research program.

As a result, the idea of bias as regards cell phone research is hardly addressed in relevant ICT literature. It is thus believed that cell phone posters relaying sound GDP, GNP, and other metrics could be correlated with development among concerned populations. Seventh, the health informatics tradition (Kahn, Yang, & Kahn, 2010) professes that cell phones have the potential to enhance the provision as well as management of health products and information systems. It follows that cell phone posters can help optimize the management of health information systems. Eighth and last, policies or regulations tradition (Mohamad, 2014) is a tradition that holds that better regulations and policies are key to the implementation of a society's development through cell phones and posters thereof. To clarify, as explained earlier, cell phone posters are not as of yet a full-fledged topic of reviewed cell phone literature – albeit the attempts or assumptions made above incorporated them in development processes and traditions to situate the reader. That said, it is not unrealistic that cell phone posters are probed and categorized under the all-encompassing rubric of ICTs.

Studies of ICTs or ICT4D Research: The eight overriding traditions or trends are in no way exhaustive, but they supply a roadmap needed to surf the recurrent positions, along the lines of which ICT-versed researchers have come to grips with cell phones and development. The roadmap comes also as a pertinent venue for a discussion held (see below) in this study on cell phones and posters thereof. As seen above, while studies of ICTs have grappled with a variety of topics, comprehensive reviews show that critical discourse analysis and indeed critical scrutiny reflect something of a low-key affair in ICT4D research (Dé, Pal, Sethi, Reddy, & Chitre, 2018). As Denzin and Lincoln (2018a) wrote, social science armed with critical examination rejects the idea that a group of individuals claims to represent, know, or even define other individuals. This view privileges collaborative, unoppressive, trustful, and unintrusive relations between researchers and the researched to make the world a better place. As emphasized in the above statements, critical literature is one that no longer defines or represents others, but rather empowers them one way or the other. Most literature on ICTs is not so much concerned with discourse analysis, or criticism, or post-colonial movements as it is with the efficiency of ICT products (Samoilenko & Osei-Bryson, 2017). The main reason for this approach is that because of current connectivity or networks ubiquity the lack of access to ICTs entails exclusion from the information age and its benefits (Rashid, 2017). The fear of digital or connectivity divide has caused scores of ICT researchers to seek refuge in the abilities or skills of accessing ICT devices.

3. Methodology

The method applied in this study was discourse analysis aka critical discourse analysis to undertake more critical research needed in the ICT body of knowledge (Dé, Pal, Sethi, Reddy, & Chitre, 2017). In fact, discourse analysis is a critical inquiry most appropriate for the understanding of this study's chosen unit, namely cell phone posters. As Livholts and Tamboukou (2015) explained, as a generic term originating from the work of

Michel Foucault from the 1970s and onward, discourse is an analytical concept that acknowledges the active role of language in the production of knowledge and power through text and talk, genre and representation. As seen in the above explanation, discourse analysis is the tool needed to bring to light the social actions or practices lurking behind the façade of cell phone posters. This is particularly true because documents or "texts mirror conscious ideas as well as unconscious ones. They might reproduce, strengthen, or challenge power, and they also do myriads of other things in social settings. (Boréus & Bergström, 2017, p. 4). Discourse analysis scrutinizes the language used/practiced in producing knowledge and power by the means of conversations, symbols, texts, views, lifestyles, topics, etc. Nonetheless, partly because of its rapid use outside of the philosophy realm, discourse analysis can be the object of confusion and misleading interpretations/expectations.

Discourse Analysis: In this section, three points need attention: (1) etymology, (2) Foucault's philosophy, and (3) practical consequences/examples. First, the English word discourse is a transliteration of the French word *discourse*, which in turn comes from the Latin verb *discurrere* (Lewis & Short, 1879). This verb comprises two parts: *dis*, which means, from, away, away from, out of, etc. and the verb *currere* which signifies to run, to move, to fly, or to pass in a given direction or several directions. One word enriching the understanding of discourse analysis is the English word current. Current originates from the same Latin verb *currere*, meaning that which is moving, running in a given direction. The underpinning idea is that of disposition, course, trend, stream, tendency, practice, etc. Another enriching word is the English word course that forms the term discourse, which carries a stronger nuance of trend, current, way of behaving, procedure, or accustomed action, etc. taken in a given direction, path, or route (hence the concept routine). Discourse analysis is a study of trends, currents, routines, way(s) of behaving or acting, practices, etc. carried/encountered behind (written or visual) objects. This type of study is more relevant because documents are not random, extraterrestrial objects, but gateways to people's unconcealed, lived, or accustomed experiences. Posters are not random, stand-alone documents either, they are gateways to the aforesaid experiences as to where/how development stands or is lived. More precisely, messages printed on posters are discourses pointing to how (much) development or fuller human actualization is being lived, experienced, or fulfilled in the selected region/population.

After etymological considerations, the second point needed to further the understanding of discourse analysis is that of Foucault's (1972) philosophy. For the purpose of this paper, only a few ideas will be touched upon. One idea with which to best picture discourse analysis is the primary work published by Foucault under the title of *Archéologie du Savoir* (Foucault, 1969), basically standing for the archeology of knowledge (Foucault, 1972). The work is essential because it helps situate discourse analysis within its proper, original scope. The word archeology has the sense of digging, drilling into the dirt to extract objects/artifacts that appear trivial, but when submitted to thorough analysis, produce meanings far well beyond the appearance/nature of the unearthed objects. Discourse analysis goes further by applying the notion of archeology to knowledge (i.e., messages, symbols, phrases, statements, icons, etc.) to extract practices left or concealed beyond the objects found (see Foucault, 1969, pp. 9-12). It is useful to keep in mind that archeology and knowledge are not directly related to one another at all. This is because archeology is the task undertaken by historians to capture tendencies, processes (i.e., wars, famines, climates, events, kingdoms, navigations, irrigations, paintings, etc.) of mankind in light of the vestiges/artifacts extracted and analyzed. In no way are historians digging into/dissecting piece by piece the concept knowledge. The difference with discourse analysis is that while historians are unearthing and analyzing objects.

Discourse analysts are digging into ordinary documents (i.e., messages, languages, speeches, symbols, sentences, etc.) somewhat trivial, to unearth the practices left behind those documents well beyond the appearance, nature of those documents. The documents at hand in this paper are cell posters. While it can be argued that the conclusions made by historians in analyzing unearthed objects are (mere?) interpretations of historians because there is no empirical research involved other than the interpretation/analysis done by a given historian, it is nonetheless true that the proposed/reached conclusions bring further light/understanding on a given society, an otherwise unavailable understanding. For instance, a vestige of the rotten bracelet can reveal a society's culture, history, economy, technology, geography, event, religion, etc. that is otherwise unavailable. Indeed, when a person was wearing that bracelet, she and the maker of the bracelet had no idea whatsoever on how the conclusions of that magnitude could be made by

historians/archeologists about their society. Discourse analysis is a recuperation/application of an archeologist's research into day-to-day document/knowledge/power. A few practical consequences/examples will be most relevant. In ordinary life, people do practice discourse analysis without noticing it. Best practical consequences/examples can be found with forensic investigation. Forensic investigation is a type of discourse analysis, critical inquiry, or archeology made on a set of items left behind a scene/event. One case in point is the discovery of blood stains, broken utensils, dispersed furniture, spilled food, open backpacks, etc.

Can be interpreted as (discourses or patterns pointing to) crime/murder/injury. Other best practical consequences/examples are found with the attempt of retrieving a lost/misplaced object. The attempt to find/unearth a lost object is a type of discourse analysis, critical inquiry, or archeology made on a series of places believed or prone to hold the searched object. The interpretations advanced in those attempts are clues or conclusions (i.e., tendency/discourse) on the existence or non-existence of a given phenomenon/object. The search/inquiry comes with specific themes that emerge as the search unfolds and the sought object is kept in mind. In the case of forensic investigation, themes include but are not limited to: blood, sharp objects, fight, assault, overthrown items, etc. Themes emerging from an attempt to retrieve an object are: last place visited, last action, time past, presence of the second or third party, object left, etc. Needless to state themes depend on the topic at hand. One powerful characteristic of discourse analysis is that it does not take things for granted. As Foucault (1969, p. 85) noted, discourse embodies themes, related concepts, connected objects, etc. When scrutinizing/analyzing documents in critical discourse analysis, themes/topics/categories emerge from the unearthed meanings/messages.

The meanings can be grouped into given topics for visibility/readability purposes, not because one theme is more significant than the others. Authors can use coding in the event of large-scale data to group the themes collected, but in the case of small-scale data such as in this study, coding is not appropriate. In either case, readability is the key reason for themes grouping. Small-scale data doesn't mean a lack of in-depth, thick inquiry. Indeed, the smaller is the data, the deeper is the scrutiny. As explained above, the number of themes is determined per saturation technique when information starts being repetitive. Four themes or main levels have been identified in this study (details below). As seen in the above descriptions, discourse analysis is the tool needed to bring to light the social actions or practices camouflaged behind (the façade of) cell phone posters. This is particularly true because documents, texts, or symbols translate conscious and unconscious views that can reinforce or question power and accompanying social phenomena (Boréus & Bergström, 2017). However, while discourse analysis has been adopted in development studies (Andersson & Hatakka, 2017; Pieterse, 2011), it remains scant in ICT research. Indeed, discourse analysis in ICT research tends to be supplanted by gender and policy studies.

This study drilled deeper into the discourse used in cell phone posters to tease out the all-too-concealed practices, actions, powers, or representations concerning development in the rural Congo. The reason being, as Denzin and Lincoln (2018b) elaborated, it is time to explore new forums, new discourses, new identities, new voices, etc. to listen to those long silenced by power structures. As is apparent from the above remarks, new spaces of research ought to be open/willing to call into question taken-for-granted discourses and to start a bright future for those who have been silenced by unquestionable systems or practices. Most importantly, as Livholts and Tamboukou (2015) cautioned, while Foucault did not offer a how-to-do manual of discourse analysis, his writings on discourses regarding power, knowledge, and human expressions have inspired a wide range of approaches that study discourse. As is now clear from the above warnings, this study used critical discourse analysis as a valuable source of inspiration to look into the patterns of social practices, powers, and representations surrounding cell phone posters. To keep a clear focus, critical discourse analysis was narrowed down to the concept development understood by the capability approach as the basic capabilities executed to achieve fuller lives of people (details below). Because posters as documents are integral to and reflective of people's real life worlds, the uses of cell phones were given great weight in analyzing.

This study's targeted posters to yield a fuller picture or thicker description of cell phone effects in this particular region of the world. Thus, a focus placed on cell phone uses unravels the effects of posters rather than deemphasizing them. Warranting mention here is an illustration with the notion ICT4D; in the sense that

when cell phone studies are carried out with regard, for example, to health, gender, government, market, etc. those studies are not by and of themselves studies of health, gender, government, market, and the like, but rather the studies look into how cell phone uses related to health, gender, government, and market yield development. The current study is not a study of posters by and of themselves, but research into ways in which cell phone uses, with regard to posters, lead to or impinge adversely on development. The study inquired into how cell phone posters contribute to ICT4D, more precisely, how posters are ICT products *for* and not *at the expense of* people's development. Cell phone posters were found not too far away from cell phone kiosks and main roads. Because cell phone posters were properties (of communication firms) drastically copyrighted, their photographs were not allowed nor replicated in the present study.

Four Main Levels or Themes: The paper used qualitative research instead of quantitative research to allow for an in-depth inquiry, yielding rich, thick information -- something known to be typical of qualitative research (Patton, 2015; Tracy, 2013; Yin, 2014). Four main levels of in-depth, thick scrutiny were reached -- using saturation. First, characteristic refers to a distinguishing trait or sign of the thing or topic being investigated. Second, context originates in the Latin verb *con-texere* (Lewis & Short, 1879), which means to weave with, knit with, etc. Therefore, context constitutes the setting, environment, or milieu in which the phenomenon being dealt with is located. Third, experience comes from the Latin gerund *ex-periens*, which signifies feeling, enjoying, undergoing, or trying, etc. Experience is composed of the things going through or manifested from within, for example: perceptions, feelings, affections, emotions, etc. concerning the phenomenon being examined. Experience includes the lessons learned, meanings gathered, worldviews espoused, or reflections undertaken, all of which are shared or exchanged in connection with a given phenomenon or topic. Fourth and last, interpretation stems from the English verb to interpret, which is to act or live like the speaker (https://www.thefreedictionary.com). To interpret is not just about relaying a person's meaning or context, but rather unraveling, enacting, or unfolding a person's fuller life or reality.

Two Techniques: One technique implemented in this study is that of saturation. As described earlier, a technique represents a procedure in which a specific task is accomplished during given research. Examples of techniques are interviews, surveys, focus groups, group discussions, etc. (Yin, 2014). Saturation, equally termed informational redundancy or simply redundancy (Patton, 2015; Saumure & Given, 2008), is a technique applied when the researcher is or starts not finding newer information or details in the search for and/or analysis of data or information. This means that information is saturated or filled when the information collected starts being repetitive. Another technique performed in this study regards crystallization. Crystallization (Denzin & Lincoln, 2011) is a technique that -- as the word crystal suggests – consists in bringing into play several prisms or perspectives when collecting/seeking information to shed deeper/broader light on the phenomenon or topic being studied.

Crystallization enables the researcher to garner as thick/deep information as needed from the selected participants and/or from the units of analysis whereas saturation causes the researcher to determine the number/amount of collected sources of information (i.e.., levels, themes, participants, etc.). With the general gist being in-depth, thicker, or deeper examination, the paper belongs more, to fine-grained, qualitative research, where the chosen techniques saturation and crystallization rightly sit, than to coarse-grained, quantitative research that is inappropriate to a thorough probe of posters and underlying courses/trends. This study used the capability approach (Sen, 1999, 2008, 2009, 2012) to view development not as a simple implementation of fixated metrics (i.e., GDP, GNP, incomes, etc.), but rather as the broader extent of actual capabilities or opportunities that people have to maximize quality life, specifically concerning human basic needs such as shelter, housing, cloth, health, and food. This framework helps assess development, not in terms of things or possessions held such as cell phones, incomes, posters, properties, etc., but rather in terms of the fuller range of capabilities enjoyed by an individual in relation to concrete human basic needs (details below). An important clarification ought to be made concerning the materials used in this study.

Since the study borrowed materials from previous work (Cibangu, 2016), with the potential to infringe on an author's copyrighted properties, the study observed the guidelines proposed by the International Committee of Medical Journal Editors [ICMJE] (2019). The ICMJE (2019) recommendations have been followed partly because such exemplary work has yet to be done in most social science areas including the ICT4D field, the reason for this might be that medical fields find themselves on the frontline of copyrighted/sensitive

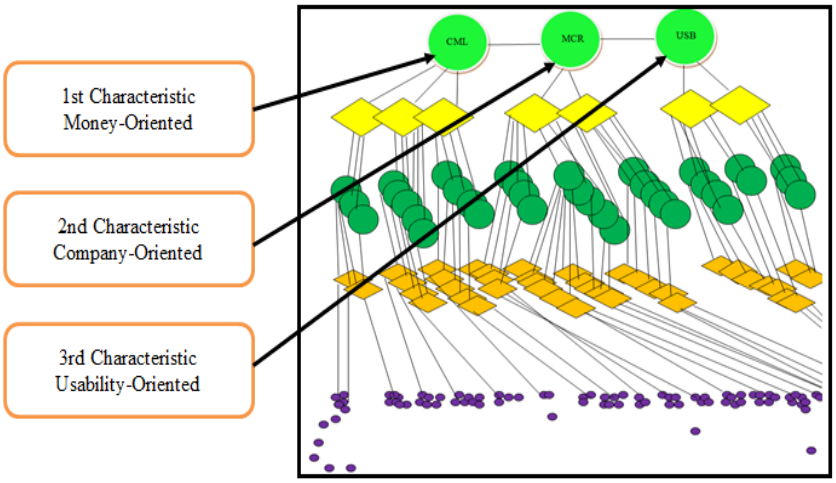
information debate. The ICMJE recommends a republication or reuse of a given previous work for three key motives: (1) when the secondary work is designed to reach the largest readership. This is even more relevant when the previous work comes in a dense format and/or in a specialized jargon such as a doctoral work, (2) the previous work is acknowledged, with the secondary work being an abbreviated version of the primary work, and (3) the secondary work aligns itself with the data, interpretations, and author(s) of the primary work. The three key motives apply very well to the present paper.

4. Findings

Findings were/are facts collected from on-site observation of cell phone posters displayed to this research's targeted populations. In line with the stated research questions and aims, this study sought to grasp the lived experiences about cell phone posters and people's development as seen and reflected in the encountered posters. These posters have a direct impact on ordinary people in developing countries. As explained above, saturation was achieved and four levels of analysis were distinguished: (1) characteristic, (2) context, (3) experience, and (4) interpretation.

Characteristics: Cell phone posters were analyzed and three key characteristics were identified, by way of saturation (see Figure 1).

Figure 1: Characteristics of Cell Phone Posters



First, posters are clearly commercial, with the goal to make profits. This finding corroborates prior criticism that cell phone and development research in Africa was characterized by monetary and extractive motives (Carmody, 2011, 2012). Examples are as follows:
There is a poster that read,
Airtel money. (Poster IX)
A second poster said,
Earn more credits. (Poster III)
And a third poster indicated,
With your money, you can connect. (Poster XII)

Second, posters reflect the needs of cell phone carriers. Thirdly, posters center on the functionality of cell phone devices. For instance,
Poster VI noted,
Simple, sure, and instantaneous.
One poster read,
Easy to text with. (Poster IV)
And another poster showed,
Now with the Internet available. (Poster VIII)

The statements above demonstrate how the usability of cell phone devices prevails in the lives of individuals, regardless of whether individuals reside in urban or rural areas.

Context: Cell phone posters were analyzed and three major contexts were distinguished, upon saturation. The first context of cell phone posters is the satisfaction or gratification offered to people when they use cell phone devices. The use of cell phone devices is markedly commercialized, irrespective of the life of concerned individuals. The second context lies in the systematically advertised diffusion of cell phone uses.
As one poster claimed,
We cover all the provinces. (Poster I)
Another poster advertised,
With offices in remote places of Congo. (Poster VII)
These and similar statements or findings bear out the idea that cell phone spread is not something random, rather it is organized, encouraged, advertised, and sponsored to reach the largest number of consumers. The third and last context of cell phone uses and people's development according to posters relates to cell phone design, in which customers remain absent or unengaged. This shows cell phone users to be passive consumers, with their living conditions being the least concern of cell phone carriers.

Experience: Cell phone posters were analyzed and three core experiences were determined, by way of saturation. The first experience observed with cell phone posters with regard to cell phone uses and people's development covers the payment of bills or of cell phone devices. The payment of bills and ensuing elimination or avoidance of debt are central to cell phone posters.
As Poster II-related,
My cell phone is easy to pay, easy to buy, and easy to use.
Another poster noted,
Also with credits. (Poster IX)
Still, another stated,
Easy way to pay. (Poster III)

The statement does not imply the living conditions on account of which a person may or may not be able to buy a cell phone. The second experience regards the fact that cell phone posters serve or target the nation as a whole, irrespective of individuals and their daily struggles.
For example, Poster X indicated,
Congo my country. Airtel my network.
Another poster said,
Number one in the Congo. (Poster VI)
Still, another noted,
Best network for Congolese. (Poster II)

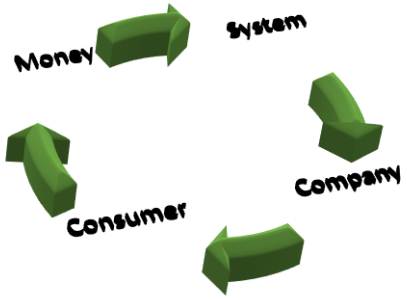
The above statement indicates the pressure placed on cell phone carriers to abide by a nation's regulations. This entails that the poor are not the main beneficiaries of cell phone carriers. The third and last experience has to do with the fact that cell phone posters are articulated in the form of orders and instructions, to which people must adhere.
Poster IX showed,
M-money.
One poster related,
Just click on text. (Poster IV)
Still, another claimed,
Talk and send messages. (Poster I)
The above statement presupposes that money is needed for a person to use cell phones. One consequence is that whether the user can or cannot afford the cell phone service does not matter for cell phone providers.

Interpretation: Cell phone posters were examined and three dominant interpretations were distinguished, by way of saturation the first dominant interpretation of cell phone carriers as revealed in posters is that of a company- or business-centered design. In other words, cell phone providers seek to ensure the maximum profit of cell phones and their businesses, leaving cell phone users unaddressed or ancillary.

As Poster VIII put it,
Join the biggest cell phone provider in the nation.
As one poster read,
With the highest number of customers on the continent. (Poster XII)

The lack of basic infrastructures might play a huge role as to why or how local individuals and their communities are not involved in the design of cell phone products and services. The second dominant interpretation, closely linked to the first, is that the need for the development of rural societies is not a concern among cell phone carriers. In effect, not one poster mentioned concepts such as the productivity, prosperity, wellbeing, infrastructure, etc. of cell phone users. The third and last interpretation regarding cell phone posters is that the policies and regulations in use neither include nor prioritize the development of rural societies. Cell phone carriers are rather keen to abide by government rules than address the situations of the poor in rural areas. This implies that the aims and expectations that cell phone providers hold about cell phone use clash with those of cell phone customers, and thus signal a money-centric cycle (see cell phone cycle in Figure 2).

Figure 2: Cell Phone Cycle (Cibangu, 2016)



Summary: The living conditions of investigated individuals and communities in rural areas tended not to be taken into account by cell phone carriers and wholesalers. As a result, it was assumed from analyzed cell phone posters that individuals in rural societies were so rich (having cash at all times) that they were basically expected if not obliged to cover fees and different expenses to ensure the highest, widest adoption of cell phone technologies in selected parts of developing nations. No indication of incentives or capabilities (details below) was found to be imparted to rural populations for them to move from grinding poverty to better and fuller lives. Messages placed on cell phone posters did not reflect well on rural populations and the realities of them. One finding of note was that the dissemination of cell phones was rather a well-organized, advertised, planned, and financed market than a random process.

Discussion

The idea of development has been supplanted by the advertisement of ICT mass consumption or adoption. ICT research is caught up in this conundrum. The key reason behind the mass advertisement of ICT vs development of concerned populations hearkens back to the history of cell phones or ICTs when the World Summit on the Information Society [WSIS] (2003, 2005) specifically defined the universal access of ICTs as key to the production, design, and use of ICTs (details below). Campaigned powerfully worldwide, the access of ICTs has had a direct effect in dampening the early claims of cell phones- or ICTs-driven development in developing countries (Aminuzzaman, 2002; Aminuzzaman, Baldersheim, & Jamil, 2003; Coyle, 2005; Waverman, Meschi, & Fuss, 2005; Williams, 2005). Universal access to ICTs has become a motivating force for ICT dissemination.

Advertisement of ICTs in Lieu of People's Development: A further boost for the mass production and/or advertisement of ICTs in lieu of people's development comes with the recent explosive proliferation of social media (Fuchs, 2017), which has heightened the social, relational dimension of ICTs. The sociality or relationality between family, community, or society members considerably reinforced by social media has

deemphasized the idea of development behind cell phones or ICTs. Mansell and Manyozo (2018) lamented that in the rapid diffusion and adoption of social media a primary focus has been placed on software and hardware. This paper went past the idea of information posters -- regarded as a mere advertisement, relational, or policy objectives of cell phone corporates to cause an audience to purchase cell phones -- to the idea of social and behavioral change to actualize a society's development. The production and dissemination of cell phone posters ought to be in tandem with the development of the world's poorest. In fact, there is an overwhelming consensus among ICT researchers that on the one hand, ICTs have the potential to generate the development or well-being of concerned populations. This las led to the concept ICT4D (Alderete, 2017; R.F. Malaquias, F.F. Malaquias, & Hwang, 2017; Qureshi, 2011, 2012, 2015, 2017, 2019, 2020; Samoilenko, 2016; Samoilenko & Osei-Bryson, 2014, 2017; Walsham, 2017). Concurrently, cell phones have evolved into a converging or desktop-like technology for populations living in rural regions of the world.

On the other hand, it is widely believed among ICT4D researchers that the causes of ICT-driven development involve areas much deeper and wider than those of traditional or widespread socio-economic factors (Alderete, 2017; Dé, Pal, Sethi, Reddy, & Chitre, 2018; Qureshi, 2011, 2012, 2015, 2019; Walsham, 2017). Thus, it has become unmistakably apparent that the causes of underdevelopment or poverty can be located in or promoted by various specific practices or technologies. While it is generally accepted that ICTs can fuel development and that socio-economic factors are not the sole proxies of development, cell phone posters have not received attention as part of the efforts toward eradicating the causes of underdevelopment or maldevelopment to use a vivid expression of Amin (1989/1990). Maldevelopment is a phrase taken from biology sciences to indicate an organism, organ, or society that undergoes a breakdown, malfunction, or impairment during its needed growth or activity. This paper was filling this gap to ensure a critical, thorough analysis of ways in which maldevelopment was being promoted, condoned, or averted.

Cell Phone Posters are in No Way Neutral: Indeed, just like any documents or ICTs, cell phone posters are in no way neutral. In the course of years, unsurprisingly, ICT discussions on development have shifted in the hopes of identifying the potential areas in which ICTs can retard or enhance people's development. For example, as Andersson and Hatakka (2017) indicated, while previous ICT conversations have focused on socio-economic development, the last decade's attention has been drawn on the question of how the use of ICTs could lead to development, with a multitude of documents being considered in this respect. ICT discussions have also centered on the topic of documents. Notwithstanding, cell phone posters are documents that cannot be taken for granted if ICT research claims to be in the vanguard of people's development. As Mansell and Manyozo (2018) affirmed, in this way, *local people may be able to shape their development in a way that reflects their ambitions and aspirations*… Yet, some of the contributors are less sanguine than others about this potential in view of local dependencies on external funding, on organizational strategies that are insensitive to local voices, and on the dynamics of global capitalism [emphasis added] (p. 330). The production and dissemination of cell phones cannot be thought of as entities separate from and disruptive of a community's destiny.

An important reason why cell phone posters warrant analysis is the call stridently made by Dé, Pal, Sethi, Reddy, and Chitre (2018) about a need for critical research in ICT literature. The authors elaborated on shallow criticism being rampant in ICT4D, hence they proposed a critical research method, not as an end-in-itself method in ICT4D, but as a way forward for stronger/firmer criticism in ICT4D. The same remark has been made by Heeks, Thapa, and Wall (2018) from a different point of view, bemoaning the paucity of deeper/thicker reflection in ICT4D. Fairly obviously, Ramadani, Kurnia, and Breidbach (2018) on their part bewailed the top-down approach crippling existing criticism seen in ICT4D. Discourse analysis is a tool noted for its criticism against taken-for-granted social practices, actions, relations, and representations. Pieterse (2011) elicited how discourse analysis is a viable instrument of criticism, particularly useful in piecing together the inconsistencies and complicities of organizational discourses and attendant practices. This paper was filling this gap by applying critical discourse analysis in looking at cell phone posters. In fact, as observed earlier, while discourse analysis has been used in ICT research, it has been overshadowed by or buried in focuses on gender equality or policy documents (Andersson & Hatakka, 2017). This paper applied critical discourse analysis to inquire into ways in which development was represented or affected through cell phone posters because cell phones were not neutral documents.

In the last few decades, the concept of information technology [IT] has evolved tremendously from being the property of organizations or corporates to being the media of people or social media used for an individual's as well as a community's needs such as economic development (Fuchs, 2017; Qureshi, 2017, 2019; Walsham, 2017). Perhaps one of the most prominent types of devices in our times are cell phones and related features or systems, whose debates cover a plethora of information fields. Yet, much of the rapid diffusion of cell phones is a function of the visuals that cell phones carry. Visuals are information systems in themselves. In recent years, extensive scholarly literature has proven that humans are visual beings (Lu & Dosher, 2014, Peoppel & Overath, 2012). Visuals span locations and times. Humans have always produced and used visual items despite an unparalleled overabundance or too often disruptive pervasiveness seen with visuals in recent years (Peoppel & Overath, 2012). To be precise, while posters abound in modern-day societies they hearken as far back as Antiquity in ancient Egypt with sculptural and pictorial paintings. This paper examined the experiences concerning cell phone use and people's development as reflected in encountered posters. Such an approach went a long way toward narrowing the study down to a specific phenomenon or topic.

The study regarded posters as integral parts of the development story in the selected area. The idea being, as Prior (2008) asserted, an understanding of documents as inert carriers of content is, unsurprisingly, well reflected in standard textbook statements on the place and position of documents in social research and it is often associated with the idea that documents and humans exist in entirely separate realms (p. 823). As explained in the above argument, posters are not inactive, ineffective entities placed on the side of a road or building, but they are part of a story, program, trend, practice, action, or behavior being lived, unfolded, and told in that specific place or context. This might well be justified by the tendency long established in academia, which separates action from system or document. As Prior (2011a) argued, this decades-long understanding of documents is prevalent in handbooks and textbooks and treats documents as inactive entities and humans as active agents. One powerful explanation for the dichotomy rebuked above is the belief that documents or images are mere creations or fabrications of humans. Nonetheless, as Prior (2011b) stated, documents are not just produced objects but also productive entities. In other words, posters are indeed produced, but they also produce social patterns or actions in which people's development is reflected and lived. Cell phone posters were chosen because they were perhaps the only posters to have entered rural populations in recent years. The reason being that in resource- and infrastructure-deficient contexts, the advantages of cell phones are higher or more urgent than in affluent societal contexts (Asongu, Boateng, & Akamavic, 2016). Traditional infrastructure would require an enormous amount of time and resources to be available to a society's members.

ICT4D Researchers: Since the world summits (WSIS, 2003, 2005) – held in 2003 in Tunis and 2005 in Geneva -- have proclaimed the universal and unobstructed access of all spheres of society to ICTs, there has been in ICT literature a crescendo of discussions referring to technical or ICT innovation, usability, or efficiency of ICTs, data visualization, corporate expansion, etc. (Avgerou, 2017; Qureshi, 2015, 2019, 2020; World Bank, 2017, 2020, 2021). Thus, the improvement of people's quality of life and discussions of that matter have slipped the mind of ICT4D researchers. These discussions come as a stark contrast to the WSIS (2003) caveat that ICTS be considered not as ends in themselves but as means to improve people's quality of life. Another reason for the little attention paid to cell phone posters despite their popularity in rural areas might be that posters are both sensitive and expensive intellectual properties. So an ICT researcher would most likely avoid potentially costly lawsuits and litigations by disregarding cell phone posters. However, a great many of ICTs investigated in information fields are just as intellectually protected as posters, for example: Facebook, Twitter, LinkedIn, Instagram, Skype, Bluetooth, e-books, etc. Still, another reason that posters do not appeal to information or ICT4D analysts might be that posters are constantly renewed or replaced, but so are iPhones and PCs, to name a few.

Meanwhile, Foucault (1969/1972) urged researchers (including those concerned with ICTs) to view discourses not as mere combinations of things and speeches, but as customs, systems, habits, powers, practices, etc. produced and hidden behind speeches. This study was thus as claimed earlier investigating the practices, actions, or representations of maldevelopment yielded in cell phone posters. As stipulated above, while there has been a heightened awareness both in information research and ICT scholarships about a holistic view of the topics being under investigation (Case & Given, 2016; Diga & May, 2016) research into the phrase cell phone posters as documents are lacking in social sciences in general and in information research

and ICT disciplines in particular. At the same time, for example, research done on ICTs or cell phones and micro-credits in Bangladesh, which claims that cell phones enabled women in rural areas to earn micro-credits, has met with rising skepticism since such research is shown to have caused discrepancies among concerned communities and individuals (Singhal et al., 2005). Sure enough, in Rwanda where the project was replicated, no evidence of impact on price and income was found (Futch & McIntosh, 2009). For all practical purposes, cell phone coverage was seen to be concentrated among the wealthier and elite (Blumenstock & Eagle, 2012). These and similar findings validate those of this study showcasing the commercial and monetary agenda of cell phone posters.

History of Information Research and ICT Fields: The history of information research and ICT fields has a lot to do with how the last several decades ICTs have been conceived of in academic literature. This also has set the tempo for ways in which documents such as cell phone posters are being (dis)regarded. The milestone momentum that has galvanized the attention of authors and researchers into ICTs came with the twin worldwide symposiums -- mentioned above -- convened on the information society (WSIS, 2003, 2005). To no small degree, the summits laid the groundwork for the concept of access to information, thought to be a universal aspiration to be attained around the world to eliminate the digital divide. The world was thus envisioned as an information society, and information was presented as the economic item or good – just like coffee, gold, grain, timber, cotton, oil, etc. were in decades past. So, knowledge was pursued as the enabler of the global economy (World Bank, 2003). A commercial and monetary agenda is one in which money and gain are the sole goal of the transaction, something that most cell phone and development literature in Africa has not called into question (Carmody, 2011, 2012, 2013). As a result, the concept of information as a superhighway (Röller & Waverman, 2001) with which to build the new global economy was treasured by numerous information or ICT researchers. It was theorized that, as seen above, investment in telecoms leads to economic growth in several respects (Röller & Waverman, 2001).

The primacy accorded to information as the lever of economy meshes well with the principles professed in the late 16th century more precisely in the Enlightenment era by Bacon (1597/1857) that knowledge in itself is power. This teaching falls in with the commercial and monetary agendas observed on cell phone posters. Thus, it was posited that information access was a means of development on the grounds that this access was viewed as the superhighway of economic growth. In addition, the stress heavily laid on information access traces as far back as Aristotle's (ca. 350 BC/1933, Book 1, 980a) thesis that humans by nature yearn for the act of knowing. In the same vein, Shannon (1948) propounded the information theory to best improve the transmission and channel of information. As is now apparent, information was conceptualized as essential to human nature, more exactly as an economic driver. Since the information was a universal good that every human must access or use, a suitable theory -- the diffusion of innovation (see Rogers, 1962/2003, pp. 1-35) -- was imported from sociology into the information research literature to optimize the access of information. At roughly the same time, economist Machlup (1962) wrote his famous work about the *production* and *distribution* of information or knowledge. This was in part because the information was deemed as an economic enabler.

Therefore, the idea of information society was replaced by the idea of universal information access along with the innovation and diffusion of information systems or ICTs. As can now be expected, cell phones have brought into greater light the idea of *mass* production and *dissemination or diffusion* of new digital technologies. This is also the context in which cell phone posters are being created and disseminated because the economy is believed to spring from the development of information systems or superhighways. It is not surprising that, as Cibangu (2015) stated, humans are defined to be conquerors of systems or of ICT devices. This view of individuals as conquerors or crusaders of systems has been magnified by the multiplication of social media encountered in recent years. The view understandably explains why cell phone posters serve the purposes of the crusade or conquest launched in rural areas to ensure the widest empire of cell phone consumers and buyers. As is now obvious, the idea of documents or visual materials coupled with cell phone posters in ICT and information fields is inescapably supplanted by that of the commercial, monetary, and extractive crusade. Thereby to fill this gap, as explained above, this paper was contributing by laying bare the social practices, routines, and trends concealed beneath (the documents) cell phone posters.

Commodification or Reification of Humans: Most pertinently, Marx (1867/1977) pondered extensively over the notion of *commodity fetishism* – which is a derivation of the German word *Warenfetischismus* – primarily meaning: objectivation, objectification, alienation, and exploitation of humans, wherein human interaction, achievement, and the like were considered or pursued solely for the sake of market, money, or gain. The concept of objectification of humans is an interpretation of Marx' original German concept *Versachlichung der Personen* (Marx, 1867/1977) -- rendered by some English commentators as *thingification* or *reification* of persons or humans, which derives from the Latin noun *res*, standing for the thing. Thingification, objectification, or reification signifies that humans are being viewed and utilized as *means*, *machines*, or *things* -- for the sheer purpose of productivity, production, or consumption. Because the research questions of this study sought to gauge ways in which cell phone posters generated development or broader opportunities to expand life on the one hand, and ways in which cell phone posters improved people's living conditions or access to human basic needs on the other, the *Versachlichung* or reification of cell phone users through cell phone posters warranted attention.

Of relevance here is the idea championed by Marx (1844/1959), namely the fuller actualization of humans or of a society's members. In this sense, the word fetishism stands for that which is thought to hold value in and of itself. In a way, fetishism regards something rather as *good in* and *of itself* than as simply pleasurable, profitable, or good. Another term employed to explain commodity fetishism is that of commodification or utilization of humans, meaning that humans can be used as mere commodities of a given market, profit, or company. The commodification or reification of humans comes under different disguises. One contribution of this study to be borne in mind is that of reification being applied to cell phone posters in such a way that humans are being objectified as mere observers, consumers, or receivers of documents or posters. The study sought to go past the reification of humans through cell phone posters to propose the fuller and better actualization of concerned humans or cell phone users. The point was to question the commonplace notion of documents as detached from social reality (Silverman, 2016). This presupposes a view of a document taken as portals, gateways, or milieus wherein that which is done by and within society comes to light rather than a traditional, widespread view of the document as a cosmetic or embellishment item put on a topic, material, or data to enhance the visibility, readability, or attractiveness of posted information /visual.

Readability or visibility of information has created an interest in information design or display (Ware, 2013). Information visualization comes to be a discipline of the display, visibility, and readability, leaving aside the disentanglements of and discussions on the fuller and better actualization of humans. Like any documents, posters are not just about pleasing individuals' eyes or cognition, but rather about marshalling individuals into the maze of practices and challenges that make up the social world. Also feeding into the reification of humans was the finding that the living conditions of the poor, the fight against poverty or the struggles of the poor, and the crying need for the development of rural societies were the least concerns among cell phone carriers and poster designers. The finding regarding reification raises a lot of questions. In truth, none of the posters mentioned the word poverty. Such a finding comes as a surprise in light of today's world. As Weil (2016) warned, the majority of the world's population has no access to safe water, sanitation, and food, and almost 5, 000 children under the age of 5 years, in developing countries die daily from diseases due to unsafe water. This happens despite the digital revolution arising in the contemporary world, with its cell phone-enhanced connectivity. Repeatedly, the World Bank (2016, 2017, 2020, 2021) cautioned the digital revolution and accompanying big data production have touched only a small portion of the world's population, with the majority still lacking internet access.

Digital Revolution and Data Revolution: The digital revolution and data revolution hailed in the name of the cell phone era and profusely propagated by cell phone posters are shown to make no difference in rural areas. Cell phone posters can very well be treated as the opium of rural populations. Therefore, one contribution of this study was the move from the commodification of humans (cell phone users) to the fuller *capabilization* or actualization of those humans. For cell phone designers and carriers, one way forward among others might be to engage local individuals with their various talents, worldviews, and experiences (i.e., artists, storytellers, poets, etc.) in the design and management of posters (i.e., upgrade, installation, removal, content, etc.). As described above, the eight leading traditions taken on more or less by ICT authors to interpret or assess information systems speak to the fetishism, reification, and commodification of specific individuals.

To illustrate, market prices or m-banking advertised on cell phone posters or any posters are demonstrated to be commodities in and of themselves. This is also one reason why this study applied Sen's (1999, 2009, 2012) capability approach to enable a society's members to live fuller and better lives by enjoying a broader spectrum of capabilities concerning human basic needs. The idea is not so much about the things, commodities, or utilities held or disseminated such as ICTs or cell phone posters, but about the range of actual capabilities that people have in real life regarding human basic needs. As Sen (2009) explained, the capability approach departs from the means, systems, and possessions of living to focus on the range of opportunities available to people to live better and fuller lives. Consistent with the above comments, this study contributed by using the capability approach to ensure a move away from the commodification and fetishization of new information devices or posters to the wider spectrum of capabilities needed for people to actualize better and fuller lives.

Specifically, as elaborated earlier, the move is one from things -, posters-, devices-, means-, or systems-centric information to that of broader opportunities surrounding human basic needs so that investigated or concerned populations can achieve better and fuller human lives. A few examples could help realize how messages conveyed on cell phone posters can be discourses in the direction of people's fuller actualization in targeted rural areas. Posters could advertise/announce/facilitate (discounts of) how, why, or where people could call in their neighborhood or apply online to get services offering better homes, schools, healthcare, bottled drinkable water, automobiles, groceries, clothes, etc. These kinds of announcements or facilitations maximizing opportunities/capabilities regarding human basic needs are becoming commonplace among cell phone users in developed nations, but that is absolutely not the case in rural areas of developing countries, not in the slightest. Thus, cell phone posters are the opium of the world's poorest and inactive, inert signs placed on the side of the road, leaving rural populations at their own risk with no capabilities in their day-to-day struggles/hardships to meet their human basic needs.

One final note of caution regarding this paper research might very well be in order here. As noted supra, this paper implemented critical discourse analysis to peer deep into the currents/routines underlying the documents cell phone posters. For focus purposes, the concept development -- known for its vast scope by most development literature -- was narrowed down to development as an actualization of people's fuller and better lives. This view has proven to be with the most consensus and the most effect in the matter of the topic development (Eekelen, 2020; Kingsbury, 2016; McGillivray, 2016). Unfortunately, this line of thought does not reflect well in and is usually dismissed by ICT4D scholarship. The reason for such a shortcoming of ICT4D is mostly that development continues to be poorly researched and rendered in ICT4D literature (Qureshi, 2015, 2017, 2020; Walsham, 2013; Zheng et al., 2018). Resulting from and exacerbating this shortcoming is the dominance of quantitative research found in ICT4D (Qureshi, 2015), whereby interpretive research done in ICT4D (i.e., discourse analysis, race theory, critical theory, etc.) is assumed/expected to produce -- in the collection and analysis of data -- so-called hard variables and techniques consistent with and proper to statistical and empirical standards of quantitative research. In a nutshell, it is not uncommon that qualitative research undertaken in ICT4D is and continues to be required by reviewers to behave in the same manner as quantitative research.

5. Conclusion and Recommendations

Limitations: This study exhibited several limitations, of which four most important bear mention here. First, being a compressed version of materials borrowed from a dissertation with the goal to fit the selected work into a paper-constrained format, the study might have been divested from important sections and details needed for a better understanding of the research performed. Second, with cell phone posters being monopolized by cell phone carriers, a study inquiring into cell phone posters might not be as reflective of rural populations and their realities as hoped. Third, since there is no such a thing as literature or discipline-specific to posters, finding stand-alone posters separate from cell phone uses in rural areas is nearly impossible. This is further complicated by the increasingly convergent or multi-tasked nature of cell phones. Fourth and last, with visual research being underutilized in information research and ICT venues, average readers might be unfamiliar with the methods espoused and the findings discussed. However, despite these and similar limitations, the study alerted ICT researchers and practitioners to one of the most pervasive

information systems of our times. To this end, the present study made contributions to an untapped area of social sciences in general and ICT4D fields in particular.

Conclusion: Cell phone policy in developing countries is most challenged and encouraged to align itself with the cause of the world's poorest living in rural areas. The answer no to the research questions posed supra is troublingly overwhelmingly clear from an analysis of posters. The point of the paper is that what is conveyed on posters can greatly contribute to awareness about and policy of poverty removal/alleviation in the Congo. Cell phone posters exhibit a remarkably monetary, commercial, and marketing role of cell phone uses and systems, with cell phone users being relegated to the position of passive consumers and rapid disseminators of cell phones and of associated corporates. The focus on money, corporate and systems leave cell phone users in rural areas with no actual opportunities to live better and fuller lives. Cell phone users have come to be reified, commodified, or seen as mere means in the pursuit of cell phone widest adoption whereas cell phones have come to be fetishized as easier, smarter, or more usable in the hands of users.

Transforming the lives of the world's poorest is thus given no priority. As was obvious in cell phone posters, the disregard or separation of cell phone industry from the local realities and struggles of the world's poorest in rural areas -- on whose behalf cell phone posters are being disseminated – bear sustained research as well as responsive design and management. Another startling finding to be brought into focus was that cell phone posters were based on commercial or extractive purposes, meaning that cell phones posters were seeking as many fees or monies from the poor as possible. For example, despite its being extensively reported in textbooks of information-related fields, poverty was one of, if not, the least concerns of cell phone posters and services. A good start might be to involve local artists and storytellers of rural populations in the design of posters so that the posters advertised or exposed might be beneficial to targeted individuals. This might not only empower relevant local individuals, but relay and bring to the forefront of the cell phone industry and academia the worldviews, expectations, and experiences of local individuals. Perhaps last and not least is the idea that user-friendly posters or visuals require full scholarly research in information research and ICT fields -- from design to implementation to management. Only then can posters in developing and developed countries foster rather the fuller and better lives of concerned individuals than the commodification and reification of humans.

References

Adams, D. & Tiesdell, S. (2012). Shaping places: Urban planning design and development. New York, NY: Routledge.

Aker, C. J. (2010). Information from markets near and far: The impact of mobile phones on grain markets in Niger. *American Economic Journal: Applied Economics,* 2(3), 46-59.

Aker, C. J. & Blumenstock, E. J. (2015). The economic impacts of new technologies in Africa. In C. Monga & J.Y. Lin (Eds.), *The Oxford Handbook of Africa and Economics,* 2, 354-371.

Alderete, V. M. (2017). Examining the ICT access effect on socio-economic development: The moderating role of ICT use and skills. *Information Technology for Development*, 23(1), 42-58.

Amin, S. (1990). Maldevelopment: Anatomy of a global failure (M. Wolfers, Trans.). London, UK: Zed. (Original work published 1989)

Aminuzzaman, M. S. (2002). Cellular phones in rural Bangladesh: A study of the Village Pay Phone of Grameen Bank. In A. Goldstein & D. O'Connor (Eds.), *Electronic commerce for development* (pp. 161-178). Paris: OECD.

Aminuzzaman, S., Baldersheim, H. & Jamil, I. (2003). Talking back! Empowerment and mobile phones in rural Bangladesh: A study of the village phone scheme of Grameen Bank. *Contemporary South Asia,* 12(3), 327-348.

Andersson, A. & Hatakka, M. (2017). Victim, mother, or untapped resource? Discourse analysis of the construction of women in ICT policies. *Information Technologies & International Development,* 13, 72–86.

Aristotle. (1933). Metaphysics (H. Tredennick, Trans.**).** New York, NY: G.P. Putnam. (Original work published ca. 350 BC)

Asongu, A. S., Boateng, A. & Akamavic, R. (2016). Mobile phone innovation and inclusive human development: Evidence from Sub-Saharan Africa. African Governance and Development Institute [AGDI] Working Paper, 1-36.

Avgerou, C. (2017). Theoretical framing of ICT4D research. In J. Choudrie, M. S. Islam, F. Wahid, J. M. Bass, & J. E. Priyatma (Eds.), Information and Communication Technologies for Development: 14th IFIP WG 9.4 International Conference on Social Implications of Computers in Developing Countries, ICT4D 2017, Yogyakarta, Indonesia, May 22-24, 2017 Proceedings (pp. 10-23). Springer.

Babbie, R. E. (2021). The practice of social research (15th ed.). Boston, MA: Cengage Learning.

Bacon, F. (1859). The works. Vol. 7. Literary and professional works Vol. 2 (edited by J. Spedding, R. L. Ellis, & D.D. Heath). London, UK: Longman Greene. (Original work published 1597)

Blumenstock, E. J. & Eagle, N. (2012). Divided we call: Disparities in access and use of mobile phones in Rwanda. *Information Technologies and International Development*, 8(2), 1-16.

Boréus, K. & Bergström, G. (2017). Analyzing text and discourse in the social sciences. In K Boréus & G. Bergström (Eds.), Analyzing text and discourse: Eight approaches for the social sciences (pp. 1-22). Thousand Oaks, CA: Sage.

Bryman, A. (2016). Social research methods (5th ed.). New York, NY: Oxford University Press.

Carmody, P. (2011). The new scramble for Africa. Cambridge, MA: Polity.

Carmody, P. (2012). Informationalization of poverty in Africa: Mobile phones and economic structure. *Information Technologies and International Development,* 8(3), 1-17.

Carmody, P. (2013). A knowledge economy or an information society in Africa? Thintegration and the mobile phones revolution. *Information Technology for Development,* 19(1), 24-39.

Case, D. O. & Given, M. L. (2016). Looking for information: A survey of research on information seeking, needs, and behavior (4th ed.). Bingley, UK: Emerald.

Cibangu, S. K. (2016). Mobile phones' contributions to socio-economic development according to Sen: Corn growers' perceived impact in the Congo. Unpublished Doctoral Dissertation, Loughborough University, Loughborough/London, UK. Retrieved from https://core.ac.uk/download/pdf/288370583.pdf

Cibangu, S. K. (2015). A new direction in information science research: Making information science a human science. *Information Research,* 20(3).

Cibangu, S. K. & Hepworth, M. (2016). What ICT4D and information management researchers can learn from Paul Otlet's notion of development. *Information Development,* 32(5), 1639-1656.

Cosgrove, L., Wheeler, E. E. & Kosterina, E. (2015). Quantitative methods: Science means and ends. In I. Parker (Ed.), Handbook of critical *psychology* (pp. 15-23). New York, NY: Routledge.

Coyle, D. (2005). Overview. *The Vodafone Policy Paper Series,* 3, 3-10.

Dé, R., Pal, A., Sethi, R., Reddy, K. S. & Chitre, C. (2017). ICT4D research: A call for a strong critical approach, *Information Technology for Development,* 24(1), 63-94.

Denzin, K. N. & Lincoln, S. Y. (2011). Introduction: The discipline and practice of qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds.), The Sage handbook of qualitative research (4th ed., pp. 1-19). Thousand Oaks, CA: Sage.

Denzin, K. N. & Lincoln, S. Y. (2018a). Locating the field. In N.K. Denzin & Y.S. Lincoln, (Eds.), The Sage handbook of qualitative research (5th ed., pp. 27-35). Thousand Oaks, CA: Sage.

Denzin, K. N. & Lincoln, S. Y. (2018b). Preface. In N.K. Denzin & Y.S. Lincoln, (Eds.), The Sage handbook of qualitative research (5th ed., pp. ix-xx). Thousand Oaks, CA: Sage.

Diga, K. & May, J. (2016). The ICT ecosystem: The application, usefulness, and future of an evolving concept. *Information Technology for Development,* 22(sup1), 1-6.

Donner, J. (2006). The use of mobile phones by microentrepreneurs in Kigali: Changes to social and business networks. *Information Technologies and International Development,* 3(2), 3-19.

Eekelen, W. V. (2020). Rural development in practice: Evolving challenges and promises. New York, NY: Routledge.

Elrod, J. K. & Fortenberry, J. L. Jr. (2018). Healthcare establishments as owner-operators of digital billboards: Making the most of excellent roadside visibility and high traffic counts to better connect with patients. *BMC Health Service Research,* 18(Suppl 3/928), 29-48.

Fortenberry, J. L. Jr., Elrod, J. K. & McGoldrick, P. J. (2010). Is billboard advertising beneficial for healthcare organizations? An investigation of efficacy and acceptability to patients. *Journal of Healthcare Management,* 55(2), 81-96.

Foucault, M. (1969). Archéologie du savoir [Archeology of knowledge]. Paris: Gallimard.

Foucault, M. (1972). The archaeology of knowledge (A.M. Sheridan, Trans.). London, UK: Tavistock. (Original work published 1969)

Fuchs, C. (2017). Social media: A critical introduction (2nd ed.). Thousand Oaks, CA: Sage.

Futch, M. & McIntosh, C. (2009). Tracking the introduction of the Village Phone product in Rwanda. *Information Technologies and International Development*, 5(3), 54-81.

Given, M. L. (2016). 100 questions (and answers) about qualitative research. Thousand Oaks, CA: Sage.

Goodman, J. (2005). Linking mobile phone ownership and use to social capital in rural South Africa and Tanzania. *The Vodafone Policy Paper Series,* 3, 53-65.

Gough, N. (2005). Introduction. *The Vodafone Policy Paper Series,* 3, 1-2.

Heeks, R. (2018). Information and communication technology for development (ICT4D). New York, NY: Routledge.

Heeks, R., Thapa, D. & Wall, J. P. (2018). Critical realism and ICT4D: Editorial introduction to the special issue of EJISDC. *The Electronic Journal of Information Systems in Developing Countries,* 84(6), 1-4.

Hjørland, B. (2014). Information science and it's core concepts: Levels of disagreement. In F. Ibekwe-SanJuan & T. M. Dousa (Eds.), Theories of information, communication and knowledge: A multidisciplinary approach (pp. 205-235). New York, NY: Springer.

Howlett, M. (2019). The policy design primer. Choosing the right tools for the job. New York, NY: Routledge.

Husserl, E. (2002). Die Idee des Phänomenologie und phänomenologischen Philosophie. Aller Teile: Allgemeine Einführung in die reine Phänomenologie (6 Aufl., unveränd. Nachdr. der 2. Aufl. 1922). Tübingen, Germany: Max Niemeyer. (Original work published 1913)

ICMJE. (2019). Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals. Retrieved from http://www.icmje.org/recommendations/

Ilahiane, H. & Sherry, W. J. (2012). The problematics of the "bottom of the pyramid" approach to international development: The case of micro-entrepreneurs use of mobile phone use in Morocco. *Information Technologies and International Development,* 8(1), 13-26.

Kahn, G. J., Yang, S. J. & Kahn, S. J. (2010). Mobile' health needs and opportunities in developing countries, *Health Affairs,* 29(2), 254-261.

Kingsbury, D. (2016). Introduction. In D. Kingsbury, J. McKay, J. Hunt, M. McGillivray, & M. Clarke (Eds.). International development: Issues and challenges (3rd ed., pp. 1-20). New York, NY: Palgrave Macmillan.

Kleine, D. (2013). Technologies of choice: ICTs, development, and the capabilities approach. Cambridge, MA: MIT.

McGillivray, M. (2016). What is development? In D. Kingsbury, J. McKay, J. Hunt, M. McGillivray, & M. Clarke (Eds.). International development: Issues and challenges (3rd ed., pp. 21-49). New York, NY: Palgrave Macmillan.

Lerner, M. R. (2011). Structure and process in relational, developmental systems theories: A commentary on contemporary changes in the understanding of developmental change across the life span. *Human Development*, 54, 34-43.

Lewis, T. C. & Short, C. (1879). A Latin Dictionary: Founded on Andrews' edition of Freund's Latin dictionary: Revised, enlarged, and in great part rewritten. Oxford, UK: Clarendon Press.

Livholts, M. & Tamboukou, M. (2015). Discourse and narrative methods: Theoretical departures, analytical strategies and situated writings. Thousand Oaks, CA: Sage.

Lu, Z, L., & Dosher, B. (2014). Visual psychophysics: From laboratory to theory. Cambridge, MA: MIT.

Machlup, F. (1962). The production and distribution of knowledge in the United States. Princeton, NJ: Princeton University Press.

Malaquias, F. R., Malaquias, F. F. & Hwang, Y. (2017). The role of information and communication technology for development in Brazil. *Information Technology for Development,* 23(1), 179-193

Mansell, R. & Manyozo, L. (2018). Introduction: The mediation of development. *Development in Practice,* 28(3), 325-331.

Marion, S. J. & Crowder, W. J. (2013). Visual research: A concise introduction to thinking visually. New York, NY: Bloomsbury Academic.

Marx, K. (1959). Economic and philosophic manuscripts of 1844 (M. Mulligan, Trans.). Moscow: Progress Publishers. (Original work published 1844)

Marx, K. (1977). Capital: A critique of political economy (B. Fowkes, Trans.). New York, NY: Vintage Books. (Original work published 1867)

Mohamad, N. (2014). Telecommunications reform and efficiency performance: Do good Molony, T. (2008). Non-developmental uses of mobile communication in Tanzania. In J.E. Katz (Ed.), Handbook of mobile communication studies (pp. 339-352). Cambridge, MA: MIT.

Noble, I. & Bestley, R. (2011). Visual research: An introduction to research methodologies in graphic design (2nd ed.). La Vergne, TN: Ingram.

Otlet, P. (1934). Traité de documentation: Le livre sur le livre: Théorie et pratique. Brussels: Mundaneum.

Patton, Q. M. (2015). Qualitative research and evaluation methods: Integrating theory and practice (4th ed.). Thousand Oaks, CA: Sage.

Peoppel, D. & Overath, T. (2012). Introduction: Why the human auditory cortex? In D. Poeppel, T. Overath, A.N. Popper, & R. R. Fay (Eds.), The human auditory cortex (pp. 1-7). New York, NY: Springer.

Peters, C., Amato, C. H. & Hollenbeck, C. R. (2007). An exploratory investigation of consumers' perceptions of wireless advertising. *Journal of Advertising,* 36(4), 129-145.

Pieterse, N. J. (2011). Discourse analysis in international development studies. *Journal of Multicultural Discourses,* 6(3), 237-240.

Prior, L. (2003). Using documents in social research. Thousand Oaks, CA: Sage.

Prior, L. (2008). Repositioning documents in social research. *Sociology,* 42(5), 821-836.

Prior, L. (2011a). Editor's introduction. In L. Prior (Ed.), Using documents and records in social research. Vol. 1: The study of content (pp. xxi-lii). Thousand Oaks, CA: Sage.

Prior, L. (2011b). Using documents in social research. In D. Silverman (Ed.), Qualitative research. Issues of theory, method and practice (3rd ed., pp. 93-110). Thousand Oaks, CA: Sage.

Qureshi, S. (2011). Globalization in development: Do information and communication technologies really matter? *Information Technology for Development,* 17*(*4), 249-252.

Qureshi, S. (2012). As the global digital divide narrows, who is being left behind? *Information Technology for Development,* 18(4), 277-280.

Qureshi, S. (2015). Are we making a better world with information and communication technology for development (ICT4D) research? Findings from the field and theory building. *Information Technology for Development,* 21(4), 511-522.

Qureshi, S. (2017). The forgotten awaken: ICT's evolving role in the roots of mass discontent. *Information Technology for Development,* 23(1), 1-17.

Qureshi, S. (2019). Perspectives on development: Why does studying information and communication technology for development (ICT4D) matter? *Information Technology for Development,* 25(3), 381-389. https://doi.org/10.1080/02681102.2019.1658478

Qureshi, S. (2020). Why data matters for development? Exploring data justice, micro-entrepreneurship, mobile money and financial inclusion. *Information Technology for Development*, 26(4), 201-213.

Ramadani, L., Kurnia, S. & Breidbach, F. C. (2018). In search for holistic ICT4D research: A systematic literature review. Proceedings of the 51st Hawaii International Conference on System Sciences, January 3-6, 2018, Waikoloa Village, HI, USA, pp. 2424-2433. Retrieved from https://scholarspace.manoa.hawaii.edu/bitstream/10125/50192/paper0305.pdf

Rashid, A. T. (2017). Inclusive capitalism and development: Case studies of telecenters fostering inclusion through ICTs in Bangladesh. *Information Technologies & International Development,* 13, 1-14.

Rayward, B. W. (2014). Information revolutions, the information society, and the future of history of information science. *Library Trends*, 62(3), 681-713.

Robinson, L. & Karamuftuoglu, M. (2010). The nature of information science: Changing models. *Information Research,* 15(4).

Rogers, M. E. (2003). Diffusion of innovations (5th ed.). New York, NY: Free Press. (Original work published 1962)

Röller, L. H. & Waverman, L. (2001). Telecommunications infrastructure and economic development: A simultaneous approach. *American Economic Review,* 91(4), 909-923.

Rose, G. (2016). Visual methodologies: An introduction to researching with visual materials (4th ed.). Thousand Oaks, CA: Sage.

Samuel, J., Shah, N. & Hadingham, W. (2005). Mobile communications in South Africa, Tanzania, and Egypt. *The Vodafone Policy Paper Series,* 3, 44-52.

Samoilenko, S. (2016). Where do investments in telecoms come from? Developing and testing a framework of sustained economic impact of investments in ICT. *Journal of Information Technology for Development,* 22(4), 584–605.

Samoilenko, S. & Osei-Bryson, K. M. (2014). Investigation of determinants of total factor productivity: An analysis of the impact of investments in telecoms on economic growth in productivity in the context of transition economies. *International Journal of Technology Diffusion,* 5(1), 26-42.

Samoilenko, S. & Osei-Bryson, K. M. (2017). An analytical framework for exploring context-specific micro-economic impacts of ICT capabilities. *Information Technology for Development,* 24(4), 633-657. https://doi.org/10.1080/02681102.2017.1336072

Saumure, K. & Given, M. L. (2008). Data saturation. In L.M. Given (Ed.), *The Sage encyclopedia of qualitative research methods,* 1&2, 195-196.

Schwab, V. O. (2015). How to write a good advertisement: A short course in copywriting. Mansfield Centre, CT: Martino.

Sen, K. A. (1999). Development as freedom. New York, NY: Random House.

Sen, K. A. (2008). Foreword. In D. Green (Ed.), From poverty to power: How active citizens and effective states can change the world (pp. xii-xvi). Oxford, UK: Oxfam.

Sen, K. A. (2009). The idea of justice. Cambridge, MA: Harvard University Press.

Sen, K. A. (2012). Values and justice. *Journal of Economic Methodology,* 19(2), 101-108.

Shaikh, A. A. & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics,* 32(1), 129-142.

Shannon, E. C. (1948). A mathematical theory of communication. *The Bell System Technical Journal,* 27(3-4), 379-423; 623-656.

Silverman, D. (2016). Introducing qualitative research. In D. Silverman (Ed.), Qualitative research (4th ed., pp. 3-14,). Thousand Oaks, CA: Sage.

Singhal, A., Svenkerud, J. P., Malaviya, P., Rogers, M. E. & Krishna, V. (2005). Bridging digital divides: Lessons learned from the IT initiatives of the Grameen Bank in Bangladesh. In O. Hemer & T. Tufte (Eds.), Media and global change: Rethinking communication for development (pp. 427-433). Göteborg, Sweden: NORDICOM.

Smith, L. M., Spence, R. & Rashid, T. A. (2011). Mobile phones and expanding human capabilities. *Information Technologies and International Development,* 7(3), 77-88.

Taylor, C. R., Franke, G. R. & Bang, H. K. (2006). Use and effectiveness of billboards: Perspectives from selective-perception theory and retail-gravity models. *Journal of Advertising,* 35(4), 21-34.

The Oxford American dictionary and language guide. (1999). New York, NY: Oxford University Press.

Tracy, J. S. (2013). Qualitative research methods: Collecting evidence, crafting analysis, and communicating impact. Malden, MA: Wiley-Blackwell.

Unwin, T. (2009). Development agendas and the place of ICTs. In T. Unwin (Ed.), ICT4D: Information and communication technology for development (pp. 7-38). New York, NY: Cambridge University Press.

Unwin, T. (2017). Reclaiming information & communication technology for development. New York, NY: Oxford University Press.

van Biljon, J. & Osei-Bryson, K. M. (2020). The communicative power of knowledge visualizations in mobilizing information and communication technology research. *Information Technology for Development,* 26(4), 637-652.

Walker, R. M., Yeung, D. T. L., Lee, M. J. & Lee, I. P. (2020). Assessing information-based policy tools: an eye-tracking laboratory experiment on public information posters. *Journal of Comparative Policy Analysis: Research and Practice,* 22(6), 558-578.

Walsham, G. (2013). Development informatics in a changing world: Reflections from ICTD 2010/2012. *Information Technologies and International Development,* 9(1), 49-54.

Walsham, G. (2017). ICT4D research: Reflections on history and future agenda. *Information Technology for Development,* 23(1), 18-41.

Ware, C. (2013). Information visualization: Perception for Design (3rd ed.). Waltham, MA: Elsevier.

Waverman, L., Meschi, M. & Fuss, M. (2005). The impact of telecoms on economic growth in developing nations. Africa: The impact of mobile phones. *The Vodafone Policy Paper Series,* 3, 10-23.

Weil, N. D. (2016). Economic growth (3rd ed.). New York, NY: Routledge.

Wells, S. R., Kolek, A. E., Williams, A. E. & Saunders, B. D. (2015). How we know what we know: A systematic comparison of research methods employed in higher education Journals, 1996–2000 v. 2006–2010. *The Journal of Higher Education,* 86(2), 171-198.

Williams, M. (2005). Mobile networks and foreign direct investment in developing countries. *The Vodafone Policy Paper Series,* 3, 24-40.

World Bank. (2003). Lifelong learning in the global knowledge economy: Challenges for developing. New York, NY: Oxford University Press.

World Bank. (2016). Digital dividends. Washington, DC: World Bank.

World Bank. (2017). Annual Report 2017: End extreme poverty, boost shared prosperity. Washington, DC: World Bank.

World Bank. (2020). Poverty and shared prosperity 2020: Reversals of fortune. Washington, DC: World Bank.

World Bank. (2021). World development report 2021: Data for better lives. Washington, DC: World Bank.

WSIS (World Summit on the Information Society). (2003). Declaration of principles. Retrieved from http://www.itu.int/net/wsis/docs/geneva/official/dop.html

WSIS. (2005). Tunis commitment. Retrieved from https://www.itu.int/net/wsis/docs2/tunis/off/7.html

Yin, R. K. (2014). Case study research: Design and methods (5th ed.). Thousand Oaks, CA: Sage.

Zheng, Y., Hatakka, M., Sahay, S. & Annika Andersson, A. (2018). Conceptualizing development in information and communication technology for development (ICT4D). *Information Technology for Development,* 24(1), 1-14.