Digital Technologies and Historical Scholarship in the Twenty-first Century

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Abstract

Digital technology entails the use of a database, interactive timelines, data visualization, and mapping in research. This study examines the evolving nature of utilizing digital materials and tools in historical scholarship. It includes the representation of the past with new technologies such as the desktop computer, computer soft wares, and the World Wide Web interface. This study analyses the tools of Web 2.0 like Google, Twitter and e-resources that can contribute to building a narrative on historical scholarship coupled with some of the problems encountered in the process. While collecting data for research the historian encounters challenges with the use of such tools and soft wares, and management and corroboration of sources becomes a challenge. This study reveals that digital technology has contributed in several ways towards enhancing historical scholarship despite some challenges like sharecropping, funding, hacking and lack of digitization of documents at the National Archives in Nigeria. At the moment, there is yet little awareness and utilization of such advanced tools, hence, the need for historians, scholars and policy makers to embark on utilization for academic and public engagements, training and funding by relevant authorities for the upgrade and utilization of digital technology in historical scholarship to further enhance a new perspective in research.

Key Words: Computer, Digital History, Historical Scholarship, Technology.

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Introduction

That the evolving field of historical scholarship has been supported firmly by the revolution of digital technology is undoubtedly an endless piece of debate that cannot be addressed in a single research article due to its dynamic and sprouting nature. Such debates include Carl Smith (1998)[1]"Can you do the history on the Web", Dennis A. Trinkle (1999),[2] "History and the Computer Revolution", Dorn Sherman (2013)[3] "Is (Digital) history more than an argument about the past? Since World War II, there has been an emergence of innovative technologies in the field of the humanities and the social sciences leading to a major convergence of groups of intellectuals under the term "digital humanities". Several scholars globally assemble steadily their community surrounding topics that relate to the usage of new tools and methods in historical scholarship and digital technology. Prominent among these are Daniel J. Cohen (2005)[4] who wrote on Digital History: A Guide to Gathering, Preserving and Presenting the Past on the Web; and Robert E. Comier's (2014) "Digital Archive Exhibits",[5] which entails data visualization, collection of archival materials for display in a digital form. Also, Elise Takehana (2015),[6] using digital technology, developed a reality tour with computer applications to exhibit artifacts and their functions in time past and to also tour the researcher into monuments of historical sites. Anna Sheftel & Stacey Zembrzycki (2017)[7] wrote on "Slowing down to listen in the Digital Age: How New Technology is Changing Oral History Practice. The world is in an era where libraries have overwhelmingly been submerged with millions of literature into digital forms such as archival materials, books, journals, monographs, notes, digital images depicting sources of history, and a host of others that are now defining and redefining the very evolving nature of scholarship.

The dawn of the desktop computer since 1983 and the Internet revolution in 1991 altered several aspects of information sharing globally, as we now live in an era of information. This is an age that needs our attention and engagement very seriously because of the high

impact a click of a button can make on our livelihood. The internet has affected and is affecting a great aspect of our lives, and its revolution has been categorized into two versions: Web 1.0 and Web 2.0. The Web 1.0 denotes an era between 1991 and 2001, a period characterized by data archiving, collection, and manipulation by academic, commercial, and political interests to attract users globally on their information platform while Web 2.0 is the second stage of the internet development which entails in-depth intensification of networking tools among users like Google, Wikipedia, YouTube, Twitter, Pinterest[8] Jstor, newspaper databases, and the likes, as researchers seek qualitative information on topics, people, places, and eras.[9] This second version of the internet is the subject of discussion in this work which has transformed research through digital archiving of sources. This is a great deal of development that enhances democratization of knowledge and increased connectivity among scholars globally. This paper discusses the impact of these digital applications and makes a critique of the evolving nature of digital technology on historical scholarship.[10]

Conceptual Clarification
Digital Technology is a transformation of human manipulation of data that is evolving through the use of portable soft and hardware technology. This helps to transmit a huge amount of information and data with the aid of binary codes and a combination of only two digits, 0 and 1 which is expressed by calculating, linking, and operating these digits through a set of instructions in a memory which is classified as bits to transmit information in form of words or images.[11] This transmission of data was made easy from analog to digital with the use of modern computing hardware like the Desktop computer and software technology from Microsoft Windows and Apple technologies. With the aid of computer applications, delivery of these data became extremely easy in a high-speed interface coupled with the introduction of the internet and World Wide Web (WWW) technology. These developments have led to an evolving dialogue that has brought together technology and inquiry into human experience to archive

information for access by different communities.[12]

Arguably, digital humanities is not a field but a digital alter-ego of inter-cultural studies or otherwise a community bridge from which people from different disciplines and backgrounds come together to learn how to talk to each other effectively and combine skills to conduct joint and interdisciplinary research, to make a textual metaphor by editing text, to redefine sources through digital scholarship, the essence of digital humanities is much like an edition and a form of interpretation.[13] The word "interpretation" came from the Latin word "*interpretation*" derived from the word "*interpret*" which is a term used to describe a person whose job is to mediate a business deal between two parties and determine a suitable best price. An interpretation is a negotiation and a form of compromise that attempts to transform a difficult stand into something easy to understand and interpret its process.

Historians are now using digital editions of text scattered around the world in the comfort of their desks using state-of-the-art computers and software to analyze and interpret data in a whole new perspective.

Historians are employing the use of imaging technology in 3D software to read a text and analyze objects that are inevitable to the human eye, such as multi-spectral and hyper-spectral imaging to read text on ancient scripts like the cuneiform, hieratic, hieroglyph, papyrus, and Arabic manuscript. Several projects are ongoing globally such as the armchair 3D travel technology invented at Harvard University to study the pyramid of Giza in ancient Egypt.[14] Also, Professor Dan Waugh's Silk Road project entails the illustration of digital text, cities, atlas, and museum collections around the world about the Silk Road in Eurasia, from the early Common Era to the 17th century.[15] Dan's work is aimed at establishing the linkage and interaction among people between the West and East in a historical perspective by using digital technology to provide information. Another work is that of Professor Joel Walker on "Ancient Iran: A Digital Platform" which is a downloadable poster, textual sources, and photo gallery on Persian history, from 3000 BCE to the early Islamic era.[16] All these Meta-data projects bring history to life into one place. These projects help in analyzing sources of history such

as objects, to gain insight into the artifacts that were used at a particular historical epoch and as well understand the very fact behind the fabrication of that object and the socio-cultural distinctiveness of identity they impacted.[17]

Digital humanities are credited to Father Roberto Busa (a Monk) creating a word index automation to all Thomas Aquinas' work. He was doing this in an old fashion way using index cards. Looking at the complex nature of the process, he approached the International Business Machines Corporation (IBM) to get a whole new way to improve on the the project; and it took him forty (40) years working on three different continents to release the first version of it, which is still online at present. The work contains around 70,000 pages in fifty-six volumes of an encyclopedia.[18] This is what digital humanities and history are all about, that is, using technology to solve problems faster and on a bigger scale in a whole new way and making it accessible to users.

Digital Technology and History: Prospects and Challenges
The democratization of knowledge made available to the public domain in digital archives and libraries renders unimaginable access to information. There are several accounts written by travellers and explorers about the Nigerian area and West Africa in the 19th century that can only be accessible in the British Library archive. Access to such information requires a scholar to undergo a rigorous and expensive process which includes traveling to have access to such information. This has been made easier now with just a click of a mouse, all it takes is a few steps of registration. Digital technology has made knowledge sharing available and reduced the cost that could be incurred from travelling a long distance to have access to information. In the same vein, the Arabic manuscript of Timbuktu is revealing more information about the history of West Africa and the outside world.[19] This have drawn the attention of scholars and the United Nations in funding such research projects to reveal more through West Africa connectedness in the ancient period with the other parts of the world which is redefining

history today.

Another aspect that is worth mentioning as to the digital technology dynamism is the aspect of social media connectivity through tools like Facebook, LinkedIn, and Twitter. These social media tools facilitate a high synergy of partnership among scholars in different parts of the world that possess a common goal in scholarship. According to research conducted by scholars in Switzerland, Twitter is converging millions of scholars, this is an application that was launched in 2006 with a "community of people" connected in an account and twitting information within a range of 140 characters in an open Application Interface API.[20] The digital humanities handle alone on Twitter possesses more than 30,800 followers, satellite television channel (History channel) with the twitter handle @HISTORY has over 2.7 million followers.

Twitter is one of the leading digital tools that mobilize people. History on Twitter is gaining momentum across the world. Professors and students of history are using Twitter for networking opportunities, public engagement, public education, and academic discussions. In terms of historical scholarship, traffic in user handles of Historical Associations varies from the Western World to Sub-Saharan Africa. As of February 2022, the following details from Twitter revealed the state of followers of various historical associations, such as the Historical Association of the United Kingdom with the Twitter handle @histassoc has over 29,900 followers; American Historical Association has over 52,900 followers. Other notable history association groups include the Economic History society @EcHistSoc with over 6,670 followers; Oxford Economic and Social History @OxfordESH, 3,822 followers. In sub-Saharan Africa, the Historical Association of South Africa @SAHistorians, has 405 followers; Historical Association of Kenya @historykenyan101 has over 45,700 followers; Historical Society of Ghana @HistoryInGhana has thirteen (13) followers while the Historical Society of Nigeria @HistoricalSNig has three (3) followers. It is very clear with the data above from Twitter that the Historical Society of Nigeria and Ghana are inactive on Twitter with very few

followers, probably due to lack of interest in the social media tool by scholars, or owing to the inability of the Associations and Societies to post updates with engaging discussions. Historians that practise their craft on social media know the benefits traditional historians need to explore the digital tool to increase their engagement in scholarship, innovative ideas, and explore new avenues of knowledge. Only further research can unravel further issues and the inactive nature of the History discipline in Nigeria towards the use of digital tools and technology.

It is pertinent to note that not all history scholars are digitally diversified and oriented in the use of Twitter and other social media tools; thus the impact of Twitter is left to a very few scholars. Therefore, the scope of historical scholarship would be prolifically strengthened through an improved engagement by scholars with the Digital tools by partaking and commenting in trending hashtags like #WhyWeStudyHistory which provide more awareness of the evolving discipline and topics in historical scholarship to users around the world.

Moreover, access to such privileged digital tools and historical information is also constrained by a barrier of language and interpretation of information which might have a huge difference from one language to another, because a word used in English can hardly have its synonym in Russian, Swahili, Yoruba, or Catalan, for instance. This has an impact on information sharing and networking by scholars. Integration of digital sources for use and wide accessibility on the internet permits combined concerted research among an interdisciplinary community of scholars in formulating perspectives of knowledge through liberated research, dialogue forums, and immediate critique of statements, comments or data released online. Websites like the nineteenth-century scholarship online (NINES) and wiki interfaces have a convergence of scholars and users that are in the humanities and history discipline who are capable of investigating several issues and collection of data they perceived to be strong, weak, and not authentic.[21] Thus, this would facilitate seeking rejoinders and new perspectives of sources of the problems and proffering further statements to the digital archive through rendering input of their perspectives and analysis of

that particular issue. This is what democratization of knowledge is all about which is made possible as a result of digitization of the humanities scholarship.

Wiki interface has redefined historical scholarship in a whole new way. Wiki is derived from the Hawaiin word "wiki" meaning superfast.[22] Wiki is an internet collaborative information management domain made to collect and organize data by users. Wikis provide users with a platform to input and update information content in different languages, they are of different categories, among which include, WikiHow, Wikitionary, catawiki, open street map, and Wikipedia.[23] The wiki that engages students in the humanities is Wikipedia, which is one of the largest world encyclopedia. It is an online encyclopedia that users upload contents and share information in different languages. From 2008 to 2022, users of this interface are increasing rapidly and are overwhelmingly found within the fold of the academia in Nigerian historical scholarship. Most lecturers and students in conferences, seminars, and workshops use this search engine to source information and use it as a reference in publications. However, no serious scholar cites Wikipedia.

No doubt, the Wikipedia interface served scholars the needed purpose without concrete criticism, peer-review is an indispensable aspect of scholarship in history and the humanities which makes one question the reliability and authenticity of sources. The conventional peer-review standard that is well known in scholarship has been waved aside in this electronic interface because the interface is credited with information created by amateur users.[24] The one billion question is, how can one attach value to a tertiary source when ultimately details of the authors are unknown without appropriate address and qualification? Who can be classified as peers in reviewing such sources within the community of users who are themselves not professionals? Scholars need to be on track and cautious with the kind of information they authoritatively cite in the research they partake. Scholars are becoming increasingly aware that using Wikipedia as a source of reliable information is amateur scholarship. Information outsourced from this

seriously interrogated and corroborated with primary and secondary sources to ascertain their authenticity. The reason, according to Professor Sati Fwatshak, is that some of its information is not well-researched, has poor referencing, and contains a falsehood.

Moreover, digital technology has made it easier for historians to have a visual picture of rare artifacts that are ordinarily not in the public domain in some museums, libraries, archives, and culture centers due to their uniqueness, fragility, and proneness to deterioration when exposed to weather condition. These sources aid historians analyze the source for interpretation to reveal whole new information. In some cases, such uploaded images or materials are mostly presented based on the trending nature of topics online or to serve some purpose, thus leading to incomplete content of the bigger picture of such sources which ultimately makes it difficult to derive a conclusion and interpretation.[25] In the same vein, the complete nature of the digitalizing procedure affects the true feature of such sources in image form uploaded to servers which are sometimes a result of technical errors. Limits of such high-tech cameras and their resolutions affect the nature of such material presentation, such as the dimension, true resolution, and actual state of the material. All these problems can be averted if strict standards are put in place to checkmate violations of procedure and standard practice. These are some of the critical issues that the historian in the twenty-first century needs to put into consideration and have at the back of his/her mind while conducting research using Web 2.0, to ascertain the veracity of the sources under scrutiny for excellent interpretation. All these tools are susceptible to update and upgrade and can sometimes be obsolete or require a change to keep on track the dynamic nature of technology and the version in use. There is constantly a new version of all these tools but never a final version.[26]

Students, when challenged with questions they do not have an idea about, would simply say "google it", "there is always an answer to that in google", "ask sheikh google". These are all phrases that need no further explanation on how people rely on the google search engine to solve their puzzle. To sum it up, people have now been googlelised in

their inquiry of data. Google is working towards digitizing millions of books across libraries to its servers for future referencing in a crowdsourcing way. How they are doing it, and in what process is not a major concern of this paper. Some problems that are observed while using google are that several pages appear to have been missing; in some cases, the scanning omits certain sentences of a book, a situation that makes research challenging and difficult.

First edition book prints are now converted into digital forms for access. Scholars now have the leverage to write on issues and places they have never been or knew very little about.[27] This has made learning easier from the comfort of homes and libraries, thus making research very interesting in a whole new way. The problem is, scholarship will be seriously affected as the personal contact with places and people that have direct contact with an event will be defeated, thus reducing the quantum of ideas needed to bolster information. Prestigious scholars like Herodotus, Ibn Khaldun, and scientists like Charles Darwin reported issues that they have direct contact with during the course of their scholarship and travels across the world which have become sources of primary data.

Now a scholar needs not waste resources, traveling time, and access permission in looking for such first edition books because they are available online for reference purposes and at no cost in some cases. This is what Web 2.0 is all about on the archived web.[28] The minds of scholars have been carried away to notice some of the errors made through the digitization of documents. The mass production of these digital materials has led to the violation of the privacy policy of libraries and authors. The omission of relevant sections and pages of such books is rampant. There is a glaring image of google employee fingers during photography of pages, evidence of children coloring on pages of books, and tissue covering pages, all in the process of digitizing sources.

History as authoritatively described by intellectuals is the past activities of man within time and space.[29] Historians have been at the forefront from benefiting in digitized sources. Digital technology has invented a whole new way of how we can interact with the past. This is

illustrated with the emergence of a veritable aspect of digital history in the form of spatial history and virtual reality. Game simulators have been used in relaying stories and history of the past[30] activities of man. Though historians have been questioning the role of simulators in interpreting the past, historians are now saddled with a new task of either accepting or rejecting such hyper-textual storytelling as history representing the past.

Spatial analysis with the aid of tools like Geographical Information System (GIS), Google Earth, and Unmanned Arial Drones have created a whole new way on how environments, maps, and events in the past can be re-examined. These tools offer the historian a first-hand testament of an event through a 3D virtual environment, which offers an insight into how historical circumstances unfolded with a closer glimpse on the site of such events and how it was resolved by actors in such situations. Looking at the recent historical epoch of the Nigeria Civil War 1967-1970, a 3D archive of photography and laboratory can be initiated and put into use by the National War Museum in Nigeria to produce a graphical depiction of events that took place in the field during the war. A good example of this process is the collaboration existing between the United States of America, Holocaust Memorial Museum and Google to extend acquaintanceship of the genocide in Sudan during the Darfur crisis.[31]

Despite the tantalizing echoes technology is offering to the history field, the availability of such tools remains a mirage to several scholars, knowing fully the fact that education funding in Nigeria is far below the UNESCO standard of 26% annual budgetary allocation to education for developing countries. The 2022 budget was passed with a very meager allocation to education. Out of the ₦16.39 trillion proposed for the 2022 budget, only ₦1.29 trillion was allocated to education representing 7.9%.[32] This meager annual budgetary allocation has continued to affect the standard of education over time in Nigeria. Lack of time and more often inadequate support by institutions also contributed to the present predicament and progress of digital scholarship.[33] Investment in e-learning is still below expectation, where

available, power supply becomes an issue.

A major area in historical scholarship that needs digital attention is the National Archives and Museums across Nigeria. These repositories of knowledge contain documents and artifacts that are gradually losing their original forms and sometimes pages missing. This is glaring at the National Archives in Kaduna. To mitigate such situations from dwindling further, there is a need for investment into digital technology by having a digital form of archival and museology materials in soft forms archived in a dedicated database online. By doing these, the surrogate of documents are kept, scholars can access such information by paying a subscription fee. This will create an avenue for revenue generation to governments and also to the archives and museums for sustenance.

Furthermore, Google technology can be embedded into historical scholarship with hypertext files designed for scholars to download and interact, which offers spatial correlation with the history discipline.[34] Sometimes uploaded contents on google are incomplete with missing pages and website links, making research difficult. This is one of the reasons why scholars always emphasize the dating of information retrieved from the internet knowing that web pages may sometimes be unavailable or deleted, especially content maintained privately and government classified information. Also, some websites that contain information on a particular issue tend to disappear from the web due to web hosting cost or the death of the inventor. History scholars have no choice but to continue to use e-resource literature such as e-books, e-journals, e-libraries, emails, e-maps, e-artifacts, and e-magazines.[35]

These e-resources are excellent but caution needs to be taken by scholars to avoid being arm-chair scholars. A wide range of copyright violations is becoming rampant in a world full of data. The future of learning and digital technology is still unfolding. It is an aspect that requires the constant contribution of intellectuals in the field. Scholars need to be mindful of what the famous digital media activist Nicholas Carr denoted as "sharecropper" which signifies the shortcomings of web 2.0. This means that some scholars contributed to knowledge through research efforts and time, but someone all of a sudden walks

away with the credit.

A major challenge of the internet is the fear of attack and manipulation of information by hackers. Some of the hacking was seen as an act of revealing scandalous deals of governments and private organizations bringing such institutions to trial.[36] Russia has been accused by the United States of America of hacking its server and manipulating results during the 2016 U.S election in favor of President Donald Trump.[37] In another development, the Pandora papers released about 11.9 million documents of illicit financial links of high-ranking political and business figures in different parts of the world including Nigeria, hidden in tax heaven accounts.[38] This is how digital technologies can be manipulated against privacy and national security. This is a fear that such heinous acts can crop into scholarship to disrupt information or delete contents that are not in favor of a state, group, or persons.

Historians have been faced with a lot of challenges in the past through analyzing sources. These barriers and constraints are gradually folding up as a result of digital technology in the humanities. Digital surrogates are photocopies or even dummies of their kind and are products of civilization circumstances.[39] Digital tools and technology can help answer research questions about the text, images, and all sorts of subjects in history and the humanities by allowing researchers to collect a whole bunch of data that can be queried and analyzed in a new variety of ways.

Conclusion

Digital technology is transforming scholarship in a whole new way. Scholars that derive pleasure from reading hard copy works of literature and the connectivity experienced while examining artifacts know that the experience is exceptional. In spite of this, having digital copies offers an avenue for access to scholars worldwide. The National Archives in Nigeria needs to digitize its documents to have alternative copies for online access and revenue generation. Digital applications in the humanities have their constraints, as most of these sites come and go so do the data saved in those servers. This could be due to lack of sustenance and funding. Historians, history departments, and the

digital tools. This situation has prevented the associations and departments from creating online convergence, global networking, engaging topics and an interactive forum for scholarship on critical issues affecting nation-building. Having annual and regional conferences alone limits most of the information to the academic network. This has alienated the digital public in benefiting from the pool of knowledge possessed by the *crème de la crème* of the history profession online. The online presence of such scholars will increase public networking, awareness and engagement. This paper indicated the inadequate engagements of the history profession in Twitter and other sub-Saharan history societies like Ghana and South Africa. Despite all the challenges discussed, digital humanities have revolutionized scholarship and will continue to play a significant role in solving problems that were hitherto not well articulated.

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