DIGITAL HUMANITIES AND INTERDISCIPLINARY RESEARCH.

Dr. kenechukwu K. Makwudo
ugochimelueze1@gmail.com,kk.makwudo@coou.edu.ng.
Department of Philosophy, Chukwuemeka Odumeugu Ojukwu University, Igbariam
&
Rev Fr. Dr. Basil Okonkwo
ba.okonkwo@nau.edu.ng.
Department of philosophy ,Nnamdi Azikiwe university,Awka.

Abstract
Digital Humanities emerged with the interplay between traditional humanities and computational methods of designing, computing and modelling human activities in a variety of domains. It is a broad field of research and scholarly activity covering not only the use of digital methods by arts and humanities researchers and collaboration by digital Humanities, specialists with computing and scientific disciplines, but also how the arts and humanities offer distinctive insights into the major social and cultural issues raised by the development of digital technologies. Thus, Work in this field is necessarily collaborative, involving multiple skills, disciplines, and areas of expertise. In essence, this paper discusses the concept of digital Humanities and interdisciplinary research, its' impacts to arts and humanities scholars , students as well as offers the rudiments/patterns for doing research across all disciplines within arts , humanities and other areas of research thereto.

Introduction
The notion of digital humanities arouse around the year 2000, as a development of the project "Computation in Humanities" that started in the 1950s. Although there is no consensus regarding the definition of digital humanities though; there is a general agreement that it involves. collaborative inter/multi/transdisciplinary practices in the generation and analysis of digital data. and computational processing available in the disciplines of the humanities.[1]

In general terms, DH emerged with the interplay between traditional humanities and computational methods of designing, computing, and modeling human activities in a variety of domain[2]. Digital humanities is a broad field of research and scholarly activity covering not only the use of digital methods by arts and humanities researchers and collaboration by digital humanities offer distinctive insights into the major social and cultural issues raised by the development of digital technologies[3]. Work in this field is necessarily collaborative, involving multiple skills, discipline, and areas of expertise.

Common Inquires for the Term "Digital Humanities": Many scholars have raised basic questions/conflicts that appeared to be troubling about this idea of digital humanities, and a number of them are:
- ❖ Are digital and humanities' really two contradictory terms that are being bridged together? Is that this, a reiteration of the 'two cultures'?
- ❖ What are the changes within the objects of inquiring in humanities disciplines-thanks to the arrival of the web and digital technologies?
- ❖ What methods are to be used to study and work with digital objects?
- ❖ How are these affecting the normal methods of the humanities?
- ❖ Is digital humanities a fringe academic phenomenon, and may it's associated with academic disciplines only?
- ❖ With several groups of practitioners engaging with questions and method like Digital Humanities outside universities, how can we define its institutional boundaries?
- ❖ What are the new skills and tools emerging with, and successively defining digital humanities practices in general[4]?

What Kind of Method are used in Digital Humanities?
Digital humanities employ a wide range of methods, which vary according to the project's research questions and objectives. Scholars use computational techniques either to address current research questions or to challenge existing theoretical frameworks, which often lead to new questions being posed and innovative methods being developed[5].

The overall intention is to seamlessly integrate computational technology into the practice of digital humanities research.

There are commonly used digital humanities methods and they are as follows:
- ❖ Text and Data Mining: This is the process of analyzing large amounts of data to gain insights and recognize patterns. This method can be applied to a range of cultural resources and materials, including books, newspapers, and social media posts. By using text mining, researchers can identify them, trends and other patterns that, may not be, immediately apparent' using traditional "close reading" methods. The findings from researching such cultural materials are presented in new ways. Often with interactive visuals and stories.

- ❖ Network Analysis and Digital Mapping: Shows connections and relationships between data. Network analysis allows researchers to visualize and analyse the relationships or interactions between people, objects and other entities. This method is particularly useful for understanding the social and cultural connections of a particular period or group, for example, the distribution of scribes and their associated works as often shown in a diagram. Digital mapping visualises the spatial relation relationships between data· points by using geocoding data to create maps. Both methods are useful for working with complex datasets.

- ❖ A smaller field of' research, animated archives is another method used by digital humanities to represent historical data in a virtually experiential way. It applies. user-centred approaches to the construction of digital archives, focusing on multi-modal presentation and interactivity"

Although digital spaces are valued for sharing and collaboration, physical spaces are important for students and researchers to come together and work with or on research approaches. One example of this is a digital humanities lab, which provides space and opportunities for students and researchers to, explore new methods or tools. These labs offer the chance to do research, tackle new questions, and work on interdisciplinary projects on current Issues.

Engaging with Digital Humanities
There are two main ways in which you might engage with digital humanities methods and principles in your research;
- ❖ By using digital tools and 'software in interpreting and addressing Arts and Humanities research questions, including in the collection, manipulation or visualization of Arts and Humanities research data.
- ❖ By applying critical traditions in Arts and Humanities research to digital technologies, including assessing the impact on research outcomes using such technologies in research[7]. Below are issues fundamental to the discipline of digital humanities
- ❖ Accessibility arid inclusivity
- ❖ Sustainability (including environmental sustainability)
- ❖ Reproducibility of data and open access
- ❖ Transparency and documentation practices
- ❖ Research ethics
- ❖ Infrastructure and equity
- ❖ Critical approaches to technological advances

Now, we' delves into the next concepts; interdisciplinary, transdisciplinary and multidisciplinary research. First, what is interdisciplinary research? Interdisciplinary research is generally considered the best way to solve complex problems in current scientific research. For smajgl and ward pointed

out that the development of interdisciplinary research promoted methodological innovation[8]. Hence, interdiseiplinary research is the practice of integrating knowledge and methods from multiple disciplines to address complex problems in scientific research,

It involves collaboration between experts from different fields to bring together diverse perspectives and approaches in order to find innovative solutions. Moreso, interdisciplinary research is about the formation of a team in which two or more disciplines integrate to resolve specific research, It involves collaboration between experts "from different fields; it brings together diverse perspectives and approaches in order to find innovative solutions. More so, interdisciplinary research is about the formation of a team in which two or more disciplines integrate to resolve specific research challenges", Researchers have conducted numerous research works regarding the overall concept and the right definition of interdisciplinary. research. We believe that adopting interdisciplinary research is crucial for enriching researchers' consideration· of particular issues, innovated theory or concept. Unlike multidisciplinary research, all the members belong to that team may separate with some basic knowledge about other collaborators disciplines[10]. As a result, establishing interdisciplinary research team is preferable than multidisciplinary.

Transdisciplinary research at a glance: In recent decades, transdisciplinarity has emerged as a new principle of scientific inquiry and received much focus in the research community. But what exactly is meant by "transdisciplinaty" and how did the concept originate? How does it differ from similar terms such as "multidisciplinary" and "interdisciplinary"? What are its defining characteristics? The prefix "trans" in "transdisciplinarity" represents a critical notion within the term; transdisciplinarity concerns the space of research that is at the same time between different disciplines across discipline and beyond each single discipline!'.

Transdisciplinarity provides a way of looking at the research problem at hand as a complex system of inter-connected facts, instead of seeing them as belonging to a single branch of science. Transdisciplinarity also seeks to bring in different parts of society to enquire into and solve complex problems that involve various groups of stakeholders. Through discussion and interaction between different participants, new understandings of the world are co-produced to deliver solutions to the increasingly wicked problems that transcend boundaries of scientific disciplines and stakeholder groups[12].

Multidisciplinary research is a research technique in which tools from different sciences and disciplines are used to find an explanation for the question being studied. Multidisciplinary research is needed to solve many, if not all, or the major research challenges of the next decade[13]. This cooperative and coordinated research requires the unified effort 'of experts from different disciplines, They all pull their knowledge to solve a problem(s) at hand. In other words, this discipline involves the search for truth using many specialized branches of learning that aim to achieve a common goal using knowledge from various disciplines.

The· Challenges Plaguing Multidisciplinary Research: Some of the challenges that are obstacles to progress in research projects, which are multidisciplinary in nature, are highlighted below.

The Lack of Coherence: One of the most prevailing predicaments of working in a multidisciplinary research group is the lack of a common understanding. It can be quite' hard to: find a way to begin working on solving a certain challenge when the rest of one's team members (each from diverse disciplines and schools of thought) have their own approach to problem solving. This makes it challenging to deliberate over ideas with the rest of the team, and acquire appropriate feedback. This problem fuels a sense of loneliness.

The Lack of Oversight: Another problem that plagues multidisciplinary research is that there is no meaningful review and evaluation of one's work, One's ideas and suggestions are either. accepted without any questions or are rejected without constructive criticism, This, makes it impossible for progress to take place[14].

Data Science and Humanity

Data science has been defined, trivially, as, "the science of data". A somewhat more detailed and broad description, is given by data scientist and historian, Benjamin Peck; for him, data science is generally agreed to be the practice of applying the scientific method to extract insights from data in order to generate predictions, drive actions, and guide further inquiring[15].

However, these definitions can be unpacked based upon a variety of different perspectives. Although a high-level (overall) definition is given above, -first, a date science is the science of data "or" data science is the study of data", another definition can be formulated, emphasizing the interdisciplinary nature of data science; "data science is a new. interdisciplinary field that synthesizes and builds on statistics, informatics, computing, communication management, and sociology to study data' and its environments". This definition takes into account many (but not all) the disciplines that contributes to data science.

Data Science for Humanity
Our modem era is characterized by massive amounts of data documenting the behavours of individuals, groups, organizations, cultures, and indeed entire societies.' This wealth of data on modern humanity is accompanied by massive digitization of historical data, both textual and numeric in the form of historic newspapers, literacy and linguistic corpora, economic data, censuses, and other government data, gathered and preserved over centuries, and newly digitized, acquired, and provisioned by libraries, scholars and commercial entities[16].

Data science methods and approaches allow scholars to act on this mass of data - to enhance our understanding of humanity in all its configurations and activities, and across time and space. From studying individual human behaviour to better modeling of human communities, organizations" countries, and societies; from understanding both our current moment and the histories .that have brought us here[17]. Data science provides analytical leverage on long-standing questions such as what factors determine economic development and well-being? What leads to well-functioning societies and democracy? What are some societies plagued by violence, repression, and conflict? Data science opens up new ways of answering these questions because it provides tools to interpret the beliefs and behaviours of people, groups; organizations; it can be leveraged to interpret the cultural and linguistic output of entire cultural. Periods and peoples; it can help us reason about the causal relationships and the complex motivations of societal and state actors. Bother the data itself, and a science to make
sense of it, are critical for advances across the social sciences, the humanities, business, education, and law. .'

Therefore, data science for humanity is a deeply interdisciplinary effort methods of machine learning, statistical reasoning, natural language processing, classification, textual analysis, and other data science approaches that developed largely (but not exclusively) in the computer science. Professions have all become essential tools for scholars and students across the disciplines". This interdisciplinarity has gone both directors: data science itself has benefited from the complex, .important, and consequential research questions focused both on the rich history of human cultures and societies, and on the present state of human kind - in both its triumph and its troubles. Data science can help diagnose those troubles, and suggest solutions; it offers a new window into the hidden histories 'and 'mysterious mechanisms of human cultures.

Digital Storytelling: Storytelling is a tried-and-tested method in education, be it by writing a book, oral storytelling or through presentations. In fact, a study by MacDonald detailed that societies have used storytelling' to teach key principles throughout the world". Likewise, Andrews, and others, explain that storytelling has been used as an information medium in. education of all types. Thanks to the technologies of the 21st century, storytelling has taken on a new form. It has become richer with the incorporation of digital media like videos, audio files, as well as images - a method called digital storytelling. What is digital storytelling? It is a multimedia presentation called a digital story combines a range of digital elements with a narrative framework text, photos, video, audio, social' media components like tweets, and interactive components like digital maps, animations, etc are all examples of media. Digital storytelling definition blends the greatest elements of the old world of telling stories and the new world of digitized video, photography and art[20].

Whether it is through presentations, oral storytelling, digital storytelling or written books, storytelling is a tried and true technique of-instruction. In reality, a study by MacDonald revealed that communities have used storytelling to impart important lessons across millennia. In addition, Andrew and others note that storytelling has been employed as a communication tool in all fields of education.

Benefits of Digital Storytelling
"A good listener is a good communicator": The quote above has a big significance when it comes to storytelling. Hence, meaningful listening is made possible by digital storytelling. Audiences have chance to learn information from

storytelling digital in a meaningful way by using digital storytelling. In a time when people are constantly being assaulted with stories and information, this is especially crucial/". Thus, below are benefits of digital storytelling.

Development of Technical Skills: Audience must choose whether to zoom in, which image is the best, when to add voiceovers, etc during the many hours spent editing videos, etc. students make progressively more fascinating and engaging videos by mastering these technical abilities, encouraging interaction and engagement with interactive features, etc.

Collaboration: Working in groups allows people to participate actively in their education and develop social skills. Other benefits of cooperative learning include simple content management, clear monitoring of audience engagement, and adaptability in structuring new concepts. They get knowledge from' their own digital storytelling works as well as those of their functional, etc.

Emotional: Impact and connection with the audience digital storytelling offers a way to create a happier, healthier audience as well as a more equal learning environment while also imparting the brand digitals storytelling skills required to succeed in modem jobs. Even though it may come out as boastful and exaggerated, a recent study supports it.

Expression of the Creative: The most fascinating' component of digital storytelling is the inventive use of technology, technical structure, visual design and organized emotional content. Less is more when it comes to ideas for digital storytelling, visual effects and maintaining consciousness and clarity in storytelling is the key techniques to success strategy.

Resource Efficiency: We are not discussing the cost of a piece of material, but rather the significance of effective resource management. And this is one of the most artistic aspects because each element that is used must be made as expressive and useful for expressing the story as possible. The goal is to employ the least amount of text, dialogue, graphics, and videos. Economy also involves writing brief narratives that includes the necessary.

Marketing: why is it so effective for marketing? Because storytelling increases emotional responses and makes the story more memorable, it activities several brain regions that affect how we view a brand[22].

Any brand wants to engage the audience and stance out. in the crowd. Naturally, marketers must take advantage of that chance.

Element of an Effective Digital Story
- Point of view
- Dramatic question
- Emotional content
- Pacing
- Soundtrack
- Visuals

Tips on creating an Effective Digital Story
- Be specific
- Be relaxed but knowledgeable
- Share untold stories.
- Detail
- Identify your journey
- Be emotional

Applying Digital Humanities to Interdisciplinary Research and to New Research

In conclusion, the field of research in digital humanities is undergoing a rapid. transformation in recent years. A deep reflection on the current needs of agents involved that takes into account key issues such as the inclusion of citizens in the creation and consumption of the cultural resources offered, the volume and complexity of datasets, available infrastructures, etc is necessary. Present technologies make it possible to achieve projects that were impossible until recently[23].

It is no surprise, then, that digital humanities has generally been located within the larger history of interdisciplinarily in the humanities, while considering the roles of paradigm and disciplinary change, the increased crossing of boundaries between the humanities and social
sciences or other disciplines, and the mobility of (epistemological) concepts and methodologies. In addition, digital humanities work and practice has been heavily shaped and performed outside academia, by organically enabling collaborations and partnership with cultural heritage institutions, infrastructures and creative industries. Lately, digital humanities has also gradually been embracing a wider, cross-disciplinary field of inquiring on materiality, ethics, cultural critique, gender, power and politics around technologically enabled knowledge production and distribution.

Thus; applying digital humanities to interdisciplinary research and new research involves leveraging digital tools, methods, and perspective to analyze and explore complex research questions across multiple disciplines. Here are some ways digital humanities can enhance interdisciplinary research.

- ❖ Digital pedagogy
- ❖ Digital scholarship
- ❖ Cultural analytics
- ❖ Digital museology
- ❖ Environmental humanities
- ❖ Digital history
- ❖ Literacy studies
- ❖ Art and design

Further, for new research areas, below is the impact of digital humanities to new research.
- ❖ Digital ethnography
- ❖ Digital archaeology
- ❖ Digital health humanities
- ❖ Digital urbanism
- ❖ Digital game studies

Therefore, by embracing digital humanities, researchers can foster innovative collaborations, develop new methodologies, and tackle complex research questions across disciplines.

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