



Tourism and Virtual Reality (VR) in Developing Nations

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Abstract

The use of Virtual Reality (VR) in tourism sector is gaining grounds across the globe. VR is an efficient persuasive marketing promotion tool for tourism stakeholders but its use in developing nations has raised some concerns especially in a 'growing-tourism' nation like Nigeria. Can VR replace the alluring, scenic and captivating tourist sites in Nigeria? What are the factors in favor and against the use of VR in Nigeria tourism sector? Possible answers to these questions necessitated this study. Secondary data were the principal means of data generation and the results were analyzed thematically. The study revealed that a developing nation like Nigeria's adoption of VR into its tourism sector comes with gains and losses respectively. Tourism planning and promotion, preservative and conservative values, insecurity challenges and the tainted image of Nigeria favor the use of VR in the sector but economic losses via reduction in dwindling-poor-tourists traffic, decline in patronage of existing destinations stifle development of unidentified potential tourists site, discourage the application of VR in the nation's tourism. VR application in Nigeria holds dual stand of which in-depth investigation is imperative before its application to Nigeria's tourism sector. The need for Nigeria's apex tourism organization (NTDC) and other state owned tourism ministries and parastatals to study VR pros and cons in tourism is a probable right path in the 21st Century. The study serves as a pointer to policy makers and academia of the vicissitudes of VR application in developing nations, with attendant value to neighboring countries and nations with interest in tourism due to the unpredictable future of VR which keeps evolving daily.

Keywords: Technology, tourism, Nigeria, virtual reality, marketing tool.

Introduction

Tourism development in the West and Global South has never been the same as evident in UNWTO annual report of 2019. This is not unconnected to the weak tourism policies and institutional weakness to develop tourism especially in Nigeria. Meanwhile in the 21st century, marketing and promotion of tourism through virtual reality is in vogue. Virtual Reality (VR) application in the tourism industry is one of the recent technological innovations shaping the industry globally. VR has been praised for its persuasive powers in tourism marketing (Tussyadiah, Wang & Jia, 2017; Guttentag, 2010). VR may not be new as it was proposed in the early 1960s (Horan, 1997); but its application and development since 2000 are changing the face of the tourism sector. It has the potential to replace actual travel to tourist destinations (Wagler & Hanus, 2018; Tussyadiah, et al, 2017). Virtual reality is seen as a conglomeration of different systems (usually computers) to replace most of a users' experience of the real world with three dimensional materials like figures and sounds (Rahman & Bhowal, 2017).



The application of VR to tourism has been met with skepticism because of its perceived impact on developing nations (Cheong, 1995), nations whose economy depend on tourism like Macau, Maldives, Seychelles, Bahamas and nations that are likely to see tourism as a means of diversifying their economy namely, Ghana and Nigeria. Cheong (1995) had hinted in the 1990s, concerns which many developing nations will raise when VR is fully harnessed into the industry. Nigeria is still at the infancy level when it comes to tourism development and is currently bedeviled with insecurity challenges (the onslaught of Fulani herdsmen and the Boko Haram insurgency in Borno state). These hamper development especially tourism that is sensitive to issue of insecurity. Nigeria's image is not encouraging while the country's landscape is flourishing with varieties of tourist attractions waiting to be visited.

Studies on VR application in Nigeria's tourism sector are either lacking or limited. This paucity of empirical literature on virtual reality and tourism in Nigeria makes the use of secondary sources inevitable in this study. Therefore, what are the challenges and prospects of VR application to Nigeria tourism sector? This study was done via a thematic analysis of literature related to tourism in Nigeria and VR. This is then essentially the hallmark of this study.

Nigeria Tourism Landscape

Tourism in Nigeria

Tourism took a formalized shape in Nigeria around 1962 with the creation of Nigeria Tourist Association; it was later recognized by government due to its enormous economic value and Nigeria Tourism Board (NTB) was created in 1976. Nigeria Tourism Development Corporation (NTDC) was created in 1992 to replace NTB; the replacement of NTB by NTDC was not unconnected to the poor output of the board and lack of visible output for tourism development (Yusuff & Akinde, 2015). With her quest to diversify the economy through tourism, the government designed the Nigeria Tourism Development Master Plan (NTDMP) that was produced in 2006, and designed in conjunction with United Nations World Tourism Organization (UNWTO) and the United Nations Development Programme (UNDP). Unfortunately, the NTDMP reports indict the Nigeria tourism Apex body NTDC of lacking the necessary finesse and capacity to develop tourism sector in the country. The Nigeria Tourism Development Corporation (NTDC) is overstaffed. The staff lack appropriate training and experience. The organization is poorly equipped, lacks computers, and has very poor office accommodation. With an inadequate budget the overall output of NTDC is an ineffective organization (Executive Summary Report of NTDMP, 2006:4). The government has made institutional efforts in developing tourism by creating National Institute for Hospitality and Tourism (NIHOTOUR) to train adequate man power for the sector. Meanwhile different states of the federation have ministries or parastatals in charge of tourism development.

Nature based attractions in Nigeria

The following are conserved areas/landscapes in Nigeria-National parks: Kainji Lake (Niger), Chad Basin (Borno/Yobe), Okomu (Edo), Old Oyo (Oyo), Cross River (Cross River), Gashaka Gumti (Taraba), and Kamuku (Kaduna); **Game reserves** include: Amambra, Akpaka, Aguleri (Anambra), Ohosu, Ologbo, Kwale, Ologbolo-Emu-Urho, Gill-Gill (Edo), Taylor Creek (Lagos), Imeko (Ogun), Ebbe Kambe (Kwara), Okpara (Oyo), Udi/Nsukka (Enugu), Stubbs, Stubbs Greek (Rivers), Kwiambana (Sokoto), Yankari, Lame/Bura (Bauchi), Falgore, Kogin (Kano), Montane (Benue), Alawa, Karabana, Dagida (Niger), Kambari, Hadeji Batariya wetland, Ibi, Pandam, Wase Rock, Pai River, Ankwe River (Plateau), Nasarawa (Nasarawa), Orle River, Iri-Ada-Obi (Delta), Ifon (Ondo), Sambisa (Borno), Kashimbila (Taraba); **Sanctuaries**: Wase rock



birds, Damper, Wase (Plateau), Nguru wetlands birds (Yobe), Baturiya birds, Hadejia Nguru wetlands and birds sanctuary (Jigawa) (Ejidike and Ajayi, 2013).

There are other natural features such as Arochukwu caves, Azumini Blue River (Abia), Ogbunike, Owerre-ezukalla and Ufuma caves (Anambra), Kolo creek (Bayelsa), Ushongo hills, Kastina-Ala River (Benue), Kwa falls and Agbokim falls, Obudu Cattle ranch resort (Cross River), Ethiopie River (Delta), Samorika Hills (Edo), Ikogosi warm spring (Ekiti), Iheneke lake, Adada river, Ezeagu cave (Enugu), Oguta lake (Imo), Bagauda lake (Kano), Rima river (Kebbi), Owu water falls (Kwara), Beaches in Eleko, Badagry (Lagos), Peperuwa lake, Numan Rocks (Nasarawa), Gurara falls, Zuma rocks (Niger), Olumo rock (Ogun), Idanre hills, Ipale Iloro waterfall (Ondo) (Akukwe and Odum, 2014) among other numerous attractions both natural and cultural in each state of Nigeria (See, Akukwe and Odum, 2014).

Archaeotourism Attractions

Archaeotourism destinations in the country abound in different regions namely; Birnin Kudu (rock painting site), Mai Idon Toro (Acheulian site), Rop (rockshelter), Igboukwu (burial chamber), Ugwuele-Uturu (Stone Age site), Umundu and Lejja (Iron working technology site), Dusten Kongba (rockshelter site), Samun Dukya (habitation site), Iwo-Eleru (rockshelter), Old Oyo (Late Stone Age site), Sungbo Eredo (Historic monument), Ezi-Ukwu ukpa (rockshelter), Isi-Ugwu Obukpa (rockshelter site), Obu-Gad (settlement site), Opi (Iron working site) etc. There are more lists of archaeotourism sites in Nigeria with their contents and locations (See- Nzewunwa, 1983; Abidemi & Philip 2007; Odum & Oguamanam, 2019). The abundance of archaeotourism sites in Nigeria made some scholars to theorize the need to use these potential sites as means of eradicating poverty in Nigeria (Abidemi & Philip, 2007), and *touristifying* these locations can lead to their conservation and generation of fund for communities, government and researchers (Odum & Oguamanam, 2019).

Museums are archaeotourism sites where historical and archaeological relics are kept for adequate conservation and exhibition. National Commission for Museums and Monuments (NCMM) is the body in charge of federal museums in Nigeria. They maintain one federal museum in each state in Nigeria.

Given this background about tourist attractions in Nigeria, the country is blessed with alluring and enchanting landscapes, cultures, monuments and history that are among the major drivers of tourism across the globe. The Nigerian government is making efforts to diversify her economy through tourism (Ngoka, 2014) and tourism seems to be a possible alternative to the country's over dependence on petroleum when it comes to boosting the fiscus (Okonkwo & Odum, 2010).

Virtual Reality

The idea of VR is influenced by film techniques such as stereoscopic or three-dimensional (3D) cinema and several widescreen system used by Hollywood filmmakers in the early 1950's of which Cinerama was one. Cinerama caught the attention of a documentary film maker named Morton Heilig (Horan, 1997). Heilig conceptualized VR, built a multi-sensory simulator named "Sensorama" but the system was not interactive (Pregebauer, 2016). This weakness was later developed, and VR was popularized by a post graduate student named Ivan Sutherland in early 60s. He used a program called Sketchpad to create images from abstractions. This he believed that display screens and digital computer gives an avenue for understanding familiarity with concepts and ideas not feasible in the real world via a window into the mathematical wonderland of computer. Sutherland continued with his research and was supported by



Defense's Advanced Research Projects Agency (ARPA) and the Office of Naval Research; he designed the first system to surround people in 3D displays of information, this is done through the Head-Mounted Display (HMD) which is the bedrock of Virtual Reality technology (Horan, 1997).

Its evolution has been described to follow a two-tier means, where the first tier explains the conceptual evolution on VR from its inclusion in early film-making techniques to its present computer generated all-inclusive Virtual Environments (VEs). The second tier comprises the physical evolution of its component parts from different individual inventories to the present day convergence (Horan, 1997). Horan proposed approaches to comprehend Virtual Reality but three approaches can be used in its definition viz: the type of technology, the type of personal response participants experience and the type of Virtual Environment (VE) that is created. He warned about a lack of a common ground in definition of VR; it has no standard definition. This concern can also be noticed when definitions vary due to features that are considered vital in constituting experience of Virtual Reality (Guttentag, 2010).

Virtual reality experience has the potential to isolate a user from the physical world to immerse him/her a condition to feel psychologically present in the virtual world (Gutierrez, Vexo & Thalmann, 2008). This is done through VR devices such as Google cardboard, Samsung Gear VR, etc.

VR is defined as computer based simulation of three dimensional environment(s) that allows its users to interact with an assumed real world through the aid of mounted head displays equipped with sensors (Zhang et al, 2018 in Nyane & Thapeli, 2018). It can inter alia be artificial, like animated background, or a location (usually geographic) that is photographed and introduced in virtual reality app or program, such as Minecraft, Domm VR (Rainey, 2018).

The definition of VR adopted here shares similarity with definition of Latta- "Virtual Reality is a human-computer interface where the computer and its devices create a sensory environment that is dynamically controlled by the action of the individual so that the Virtual Environment appears real to the participant" (Latta, 1991 cited in Horan 1997:3).

Adopting VE stand in VR definition will mainly redirect the focus on VR away from the type(s) of hardware that creates the VE to the virtual environment that is created (for users-ie tourists/visitors). Furthermore, such stand appears less subjective since it does not require individual experience and a definition that is not based on technology, but accommodates varieties of technologies from different perspectives (Horan, 1997).

The advent of VR to tourism has been met with divergent opinion of which this study is one, and the need for caution in using VR will be discussed in this paper. Meanwhile, other scholars support VR application in tourism because it enhances tourism experiences (Moorhouse, Tom Dieck & Jung, 2018), unlimited access to tourists sites (Guttentag, 2010), as long as tourists are Information and Communication Technology (ICT) compliant. It is a means of tourism marketing and destination promotion (Moorhouse, et al, 2018), vital marketing tool (Huang, Backman, Backman & Chang, 2016) and it attracts more revenue (Radde, 2017) to destination managers. There are litany of benefits of VR to both business and destinations, and users (i.e. tourists) (Tussyadiah, Wang, Jung & Dieck, 2018).

The concept of VR used in this paper is a computer-generated three dimensional environment (referred to as Virtual Environment-VE) with the capacity to ensure user interaction with resultant effect of the user real-time simulation of at least one or more of human five senses (sight, touch, hearing, smell & taste). Our concern here is on creating VE through VR; such VE



will likely reduce the number of tourists/visitors to tourist's destinations in Nigeria. Therefore, VR application might have merits and demerits.

Nigeria

Nigeria is geographically located in West Africa on the Gulf of Guinea between Benin and Cameroon. It shares boundaries with Cameroon in the east, Chad in the northeast, Niger in the North and the Benin West. It became an independent nation in 1960. Hausa, Yoruba and Igbo are the three major ethnic groups in Nigeria. Fifty percent of the populace are adherents of Islam, 40% Christians and 10% believe in indigenous beliefs like animism (Library of Congress, 2008). This multi-religious setting divided along ethnic lines has contributed to most civil unrest in the country with negative impact on the tourism sector (Ezenagu, 2018).

Nigeria's Image

The image of Nigeria in the media and general public seems to be questionable and has a serious backlash on tourism development in the country. Literary icon and Nobel laureate, Chinua Achebe commenting on tourism development in Nigeria observes thus:

"It is a measure of our self-delusion that we can talk about developing tourism in Nigeria. Only a masochist with an exuberant taste for self-violence will pick Nigeria for a holiday; only a character out of Tutuola seeking to know punishment and poverty at first hand! No, Nigeria may be a paradise for adventurers and pirates, but not tourists" (Achebe, 1983:11).

Beyond Nigeria, United States image of Nigeria gives credence to the previous observation by Achebe. United States has described Nigeria to its citizens in the following lines:

"The Department of State warns US citizens of the dangers of travel to Nigeria. Nigeria has limited tourist facilities and conditions pose considerable risks to travelers. Violent crimes, committed by ordinary criminals, as well as by persons in police and military uniforms, can occur throughout the country. Kidnapping for ransom of persons associated with the petroleum sector, including USA citizens, remains common in the Niger Delta area. Use of public transportation through Nigeria is dangerous and should be avoided. Taxis pose risks because of the possibility of fraudulent or criminal operators and poorly maintained vehicles. Most Nigerian airlines have aging fleets, and there are valid concerns that maintenance and operational procedures may be inadequate to ensure passenger safety." (Cf:Bankole, 2008:162).

Currently, the media is always flashed with news of violence and insecurity in Nigeria. Similarly, the Niger-Delta was once engulfed by the menace of the Movement for the Emancipation of the Niger Delta (MEND) before 2011. There are also clashes between security forces and members of Indigenous People of Biafra (IPOB)/Movement for Actualization of Sovereign State of Biafra (MASSOB) in the Eastern region. In the Northern part of Nigeria there are clashes between Boko Haram and security personnel since 2010 when Boko Haram insurgency sporadically spread to different parts of the Northern region of Nigeria, displacing millions of persons from their homes (Brechenmacher, 2019).

Boko Haram's official name is *Jama'atu Ahlis Sunna Lidda'awati wal-Jihad* which translates to 'people committed to the propagation of the prophet's teaching and Jihad'. The group was formed by a Muslim cleric known as Mohammed Yusuf in Maiduguri in the year 2002 (Adeyemi-Suenu, 2015). Boko Haram attacks have been increasing in frequency and intensity (Eme & Jide, 2012); recently new splitter group from Boko Haram called Islamic State West Africa Province (ISWAP) appears worrisome. By 2018, ISWAP extended its territorial grip to northern

axis of Borno State, capturing towns close to Lake Chad that was once under the control of Nigerian army (Brechenmacher, 2018). The inability of Nigerian government to tackle Boko Haram has serious impact on the country's external image (Adeyemi-Suenu, 2015).

Obeta and Onah (2013:30) have argued that 'Nigeria's image stinks to high hell' due to (i) endemic culture and policy of corruption, (ii) poor, weak, selfish and inept leadership, (iii) poor moral value system, (iv) long-standing history of military rule, (v) decadent political, social and economic system, (vi) bastardization of the rule of law philosophy, (vii) hydra-headed social malaise. They further added that the situation is worsened by (i) Niger-Delta schismogenesis and its attendant terrorism, (ii) general insecurity, fraud and dishonesty, (iii) rising religious and ethnic tensions, (v) Cybernetic, drug and 419 terrorism, (vi) poverty which now stands at 80% in the country makes our image bad (Egwu 2007:3 cited in Obeta & Onah 2013:30).

The situation became more worrisome with reports of Fulani herdsmen killings in the country especially in Benue where hundreds of lives were lost to herdsmen attacks (Ndubuisi, 2017). Ndubuisi added that the activities of herdsmen in Nasarawa, Jos, Kaduna, Enugu and Benue to mention but few have caused loss of lives and property; their activities stifle development in the nation And their menace threatens peace, security and the unity of Nigeria. Nevertheless, scholars have championed the need to use the Nigeria tourism landscape to revive the nation's ailing image, via developing different aspects of tourism in Nigeria (Obeta & Onah, 2013).



Figure 1. Map of Nigeria with its 36 states and Federal Capital Territory (FCT)
Source: www.nigerianfinder.com

VR application to Nigeria Tourism Sector

There are some studies that are near to VR and its application in tourism development in Nigeria. These studies have highlighted the importance of VR as a marketing tool to help promote tourism in Nigeria. Balogun, Thompson and Sarumi (2010) argued in favor of VR, suggesting a D-Dimension (3D) model of virtual walk through for tourist centers and historical heritage. They used tourist sites in Osun State of Nigeria as a case study. The proposed integration of Geographic Information System (GIS) and VR through the internet to enhance management and promotion of the tourism industry, this is one of the areas Guttentag (2010) also mentioned in using VR as management and planning tool in tourism industry. VR impact on tourism seems to be enormous but planning, management, marketing, entertainment; education, accessibility, and heritage preservation are six principal areas with profound VR effect (Guttentag, 2010). Areas and factors that have necessitated the use of VR or its application in Nigeria tourism industry is discussed below.

Accessibility to inaccessible areas- Yankari National Park and Sambisa Forest located in the northern region have been affected by Boko Haram attacks. With VR, visitors and tourists can stay in another location within Nigeria to enjoy the varied flora, fauna and other natural features in these destinations, rather than visiting the actual destination that is not violent free.

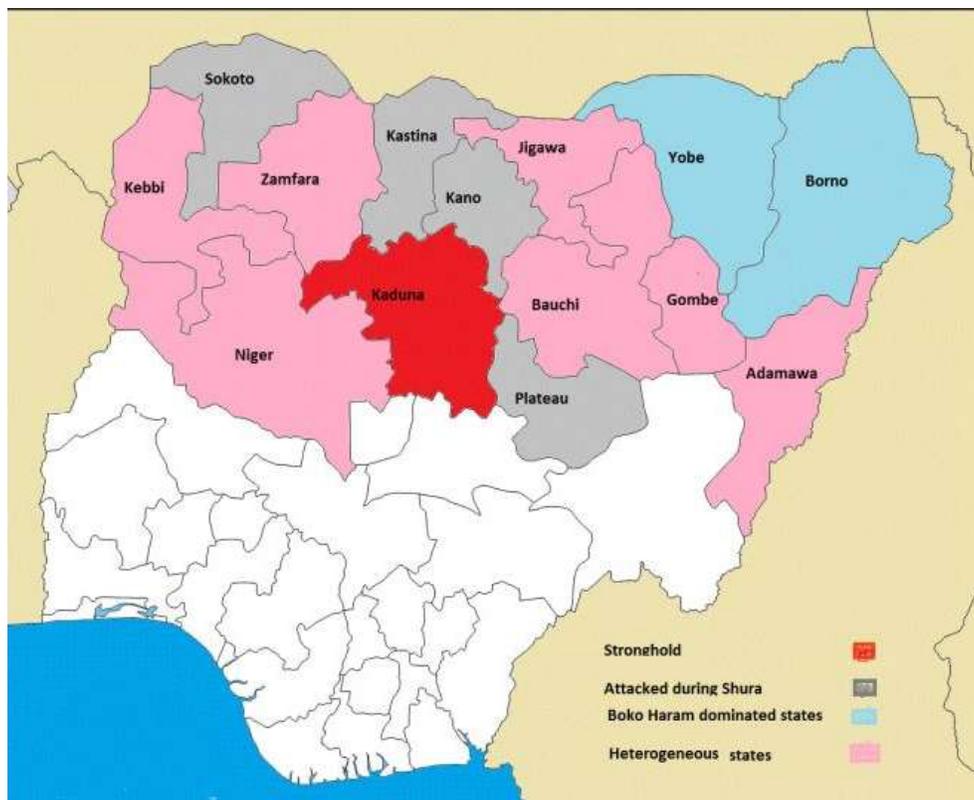


Figure 2. Map of Nigeria with possible Shiites attack in near future as shown by Anjide and Okoli (2017)

The Shiite-Muslims of Nigeria have been clashing with Nigerian government and other variants of Islamic sects in the country like the Izala which is the largest Sunnist group in Nigeria (Anjide & Okoli, 2017). There is phobia that when Shiite-Muslims take to arms and violence, it will retaliate all the attacks meted out on their members over the years. This and other reasons highlighted by Anjide and Okoli (2017) lead to the creation of figure 2.



Similarly, as discussed earlier, Fulani Herdsmen have attacked innocent citizens in their homes. They have raped, killed and maimed persons in different parts of Nigeria. Images and news associated with their act are a turn off for prospective tourists both local and international. Intending tourists are likely to patronize available VR center to enjoy Nigeria tourism rather than taking a risk to visit the country. Tourists destinations in the highlighted states in figure 2 are in danger of destruction and while some are being already destroyed such as Sambisa Forest and Sukur Cultural Landscape in Adamawa (Ezenagu, 2018). These attacks make the development of VR for tourism in Nigeria a probable path. Similarly, areas that are not accessible can be accessed via VR, classic examples are the Amazon Jungle and the Antarctic (Cheong, 1995)

Preservation of Natural Landscape

Anthropogenic activities like tourism have diverse impact on natural destinations. Hanauma Bay, a popular tourist spot on the Island of Oahu, Hawaii was affected by large number of tourists' activities; visitors' activities affected the coral with a negative effect on the bay's marine system (Cheong, 1995). Similarly, in Nigeria, poaching in National parks are issues of conservation to bodies like National Park Service (NPS), Nigeria Conservation Foundation (NCF) and others. National parks and other conserved areas reports of poaching activities are challenges to effective tourism management (Ijeomah & Odunlami, 2016), defacement of caves associated with tourists/visitors (Odum, 2019) constitute other challenges to tourism. VR can limit the number of visitors and tourists in a destination and conserve the integrity of the ecosystem. Nigeria being a prospective sustainable tourist destination in near future, the integrity of the environment needs to be maintained.

Furthermore, the reduction in the number of people who visit a tourist site physically can reduce the effect of carrying capacity; because the real hours spent on natural attraction are reduced and this has been interpreted as one of the preservative values of VR (Kask, 2018), and VR is perceived to have a positive input to environmental sustainability (Dewailly, 1999).

Bridging Barrier and Fears

The advancement in computer applications and virtual realities will reduce the propensity for travel. Time and cost will be saved by tourists and travelers. VR bridges the stresses, protocols and travel bottlenecks associated with engaging in actual/real travel (Cheong, 1995). Meanwhile, what might be safer, cheaper and convenient for some class of tourists, or tourists who cannot travel due to health related-issues. A recent example is First Airlines, a Japanese company that has developed dream vacations for guest (Street, 2018 in Nyane and Thapeli, 2018). Nyane and Thapeli (2018) explained that the company hopes to provide their passengers that have health challenges with the opportunity to experience a vacation of their choice without leaving Tokyo. Cheong (1995) supported this assertion when he explained that people can walk into nearby virtual reality system, wear the required gadgets and select a trip of choice.

Religious crises in some parts of Nigeria has dwindled touristic inflow in destinations like Gumti Park, Kamuku National Park, Chad basin, among others. Specifically, since the insurgency of Boko Haram in the Northeastern Nigeria, local and foreign tourists have been driven away, National Parks and hospitality sector in the region declined (Oketola, 2015). Conversely, a robust comprehensive and well-designed VR system located in safer locations of the country can offer tourists the opportunity to visit these destinations in danger zones.

Tourists who are afraid of lakes, streams, and rivers can traverse the length and breadth of Niger and Benue rivers, the two popular rivers in Nigeria and perhaps the dark and deep caves in different parts of eastern Nigeria. These caves are believed to be the abode of gods/goddess,



and are usually serene and are scenic (See, Odum, 2011; Onwudufor & Odum, 2015; Odum, 2019). They include Olumo rock, Osun-Oshogbo sacred grove in western part of the country. VR can allay fears of tourists/visitors who out of phobia or other personal bias may not want to have physical encounter with natural attractions that have socio-religious values like Ogbunike cave, Ogba Ukwu cave in Anambra State, Ogba (cave) in Ukehe, Affa, Ezeagu, Awhum all in Enugu state, among others.

VR and Archaeotourism Destinations in Nigeria

There are numerous archaeotourism sites in Nigeria as highlighted earlier and some of these archaeotourism destinations are sensitive to human encroachment. To avoid human contamination with archaeological evidence and artefacts, archaeological sites may be better enjoyed with VR than actually visiting the site. Exposing un-gazetted archaeological sites for archaeotourism benefits are uncertain because there are chances that tourism promoters lack archaeological finesse such as conservation and preservation needed to cater for an archaeological site (Griffith & Griffith, 2012 cited in Odum & Oguamanam, 2019).

Tourists and visitors can enjoy historical accounts and scenes of archaeological sites through VR in Nigeria. In the same vein, museums are sensitive to visitors touching artifacts on exhibition, cameras are not allowed in Nigerian museums, but virtual reality can allow a museum user to feel and touch exhibition in the virtual world without damage. VR holds a lot of benefits in conservation of archaeological and historical facts in Nigeria; it can also curb burglary and stealing of priceless original artefacts.

VR a Vital Marketing and Planning Tool for Nigeria Tourism

There are conceptual and empirical studies on the inherent advantages associated with using VR as a marketing and decision making tool (Tussyadiah, et al, 2018; Kask, Kull & Orru, 2018). VR will have robust impact in marketing of tourist destinations especially the known and unknown, popular and unpopular, creating avenues for multiple explorations of varieties of tourism attractions in Nigeria. Models and simulations on how best to develop tourist sites with attendant advantages and disadvantages can be first modelled through VR.

Virtual reality can be used to showcase merits and demerits of a proposed tourism projects. Negative impact can be minimized, corrections easily made, especially contributions from locals during the planning stage of a project. People who are not interested in tourism projects can be easily convinced through the persuasive of three dimensional (3D) VR, and 3D visualization has been argued to be one of effective means of sustainable tourism development planning medium (Kask, Kull & Orru, 2018). If VR can be employed in the Nigerian tourism industry, it will most likely enhance the sector. Meanwhile the existence of different types of tourism might require different approaches to the use of VR. VR may be used in safeguarding some sites especially archaeotourism destinations.

However, it might not be used in religious destinations like a monastery, where the tourism experience is more of a psycho-spiritual experience Nicolaidis, (2016) says that there are many destinations and sites that are by their very nature of great religious, cultural, architectural or historical value and thus of great curiosity to both domestic and foreign tourists. If there are deficits in marketing communication, poor infrastructure and threats of terrorism, this could hinder the development of pilgrimage and religious tourism which is a huge sector and niche market that could greatly add value to Nigeria.



Negative Implications of VR Application to Tourism in Nigeria

Reduction in Number of Visitors and Poor Income to Host Communities and Government

Balogun et al (2010) have argued in favor of VR application to tourist sites in Osun but this paper interrogates what the host community stands to gain when tourists/visitors visit their tourists/ heritage sites through VR. VR may aid in promoting and preserving the heritage sites but the economic impact maybe lost. The monetary gains from tourists and visitors aid conservation of tourists' resources. Using the example of Balogun et al (2010), Osun State has more than 200 towns, villages and hamlets, how will they feel the economic impact of tourism if VR reality replaces actual visit? How will they know the value of tourism they don't feel? Cheong (1995) has warned about consequences of using VR in tourism industry, he states as follows: "If virtual reality were to emerge as a successful application in tourism, many countries would undoubtedly voice their concerns. These countries, especially in the Third World and other developing nations, rely to a huge extent on revenue generated by their respective tourism industries". Therefore, it is in their best interests to attract more visitors to their tourist destinations and in any case most tourists prefer authentic experiences (Nicolaidis, 2014). The influx of tourist expenditure and foreign investments in tourism infrastructure enhance the host country's economy and improve the standard of living of the native population. It would, then be to the severe detriment of these tourism-dependent countries should virtual reality become a substitute for tourism as fewer and fewer visitors would arrive at the destination over time (Cheong, 1995:421).

The afore-written postulation becomes more worrisome for a country like Nigeria trying to diversify her economy through tourism. VR will definitely cripple or dwindle any economic gains that are likely to accrue to the sector; stifle development opportunities for communities where tourism appears to be the only advantage they have to attract government presence in their domain, such as Obudu, where Obudu Cattle Ranch is situated.

It is worrisome for a country like Nigeria that is looking up to tourism to revive its economy to venture into VR without caution, because our socio- political realities and security situation are not strong enough to attract tourists. Where Nigeria tourism landscape can be enjoyed through VR, one wonders where the expected income from tourists will come from; where alternative VR of Nigeria destination exists.

Infringement of Copyright

What happens if the idea of intellectual property laws stands? Companies will be at loggerheads with many developing nations for using their landscape image in VR gadgets. This type of infringement has been reported by the Indian government when government of Bangladesh constructed a replica of Taj Mahal (Guttentag, 2010). Developed nations will take advantage of Nigeria's precarious image, model its destination, and make economic gains without income accruing to Nigeria's coffers. This will definitely result in lawsuits and breaches of peace.

Lack of Development of Unidentified Potential Tourist Sites

Nigeria is endowed with innumerable tourist attractions of various forms, but these resources are underexplored, under-utilized and under-exploited (Obeta & Onah, 2013) while the developed ones like Tinapa and Obudu Cattle Ranch, declined immediately when the governor that initiated the idea of these destination left the seat of government (Esu,2015). Rahman and Bhowal (2017) explained that the VR application to tourism creates Virtual tourism that affects many destinations that are undeveloped and remote sites from popular destinations across the

globe. Virtual tourism will affect the travelers/tourists' propensity to travel. This is likely to be worse for countries without comprehensive lists of their tourist destinations, as in the case of Nigeria. This lack of a comprehensive tourist destinations list has been a major statement of a problem for academic research in recent times. Evaluation of Ecotourism Potential for Sustainable Tourism Development in Anambra State is a 2017 doctoral dissertation provoked by the problem Evaluation of Ecotourism Attractions in Enugu State is also a 2015 master's degree thesis, both studies were carried out in different states in eastern Nigeria in recent times submitted in University of Calabar, Nigeria.

Decline in Patronage of Existing Destination

Insecurity in Nigeria has affected Nigerian tourism industry as evident in the reports by different scholars on National parks in Nigeria. Creating alternative access to National Parks using VR system will cripple the already declining tourist patronage of Nigeria National Parks and other tourism attractions. This will definitely have a huge ripple effect on job opportunities and income in tourist destinations. VR is likely to give tourists an all-inclusive package about a destination and more than just from one location, and the propensity to travel will decline. Tussyadiah, *et al* (2017) have also argued that VR is a likely substitute for travel and enjoying travel experience. Recently, a "4D VR experience is coming up, where travelers are expected to walk into a "Teleporter station" which gives users a whole lot of new immersive experience (Nyane & Thapeli, 2018). An example of teleporter is shown in figure 3.



Figure 3. A specimen of Marriot-Hotels immersive 4D experience
Source: Munshower, 2015 cited in Nyane and Thapeli, 2018.

What then is the essence of developing tourists' attractions when such technology can replace actual travel? This calls for caution in the application of VR in Nigeria and other developing nations who hope to use tourism for economic rejuvenation. VR appears to have its negative sides and is likely to be worse for countries with weak tourism backgrounds and policies like those of Nigeria.

Discussion and Conclusion

Nigeria's geographic boundaries undoubtedly hold potential for an ideal tourist destination. A home with two world heritage sites located in different geopolitical zones: Sukur Cultural Landscape in Adamawa State (Northern region) and Osun-Oshogbo Sacred Grove in Osun State (Western region). One of its parks, Cross River National Park, is one of the United Nations (UN) 25 Biodiversity Hotspots (Oloro, 2018); and there are unique annual festivals like Argungu



Fishing Festival in Kebbi State, Calabar Carnival in Cross River and Abuja Carnival to mention but few. Tourism potential of the country has been advocated to be used as a means of branding and redeeming the tainted image of the nation (Obeta & Onah, 2013).

Virtual reality application to tourism sectors across the globe is a welcome development, leading to virtual tourism in countries like Mexico, Scotland, Las Vegas (Rahman & Bhowal, 2017) etc. The value of VR to tourism in areas of marketing cannot be over-emphasized (Cheong, 1995; Guttentag, 2010; Tussyadiah, *et al*, 2018). Concerns about its application have been raised due to VR ability to reduce the number of visitors in a destination, negative economic effects. With institutional weakness in promoting tourism in Nigeria, the arrival of VR on the scene will make these organizations (i.e. Nigeria Tourism Development Corporation) more redundant, less concerned and stifle any existing tourism development progress, especially in area of tourism sites documentation.

The study has tried to pigeonhole VR within tourism using Nigeria context (especially its peculiarities-political laxity in tourism development) and its negative image due to incessant security challenges which hampers meaningful tourism traffic in the country. VR can enhance tourism development but its application in developing nations like Nigeria is still dicey due to afore-written tourism challenges in the country.

Developing nations where pre and post-election violence are common, Islamic militia unleash mayhem to both citizens and foreigners, kidnapping for ransom, xenophobia etc. are common and unsafe for tourists. This breaches the Global Code of Ethics for Tourism (GCET) Article 1, where one of the subthemes of article one reads: *Protect tourists, visitors, and their belongings from any attack, assaults, kidnappings or threats*. VR can be applied to market such destinations, despite their challenges.

VR may be applied in archaeotourism destinations due to the delicate nature of archaeological sites. This will ensure safety of the site. Archaeologists are usually wary of tourists/visitors, because of the fragile nature of archaeological sites.

It is the submission of this paper that VR application in tourism sector of developing nations is subject to many variables such as the socio-political terrain, the security situation, institutional capacity and efficient man-power and the existing role of tourism in the country. If a country's tourism industry is not 'matured enough' (established structures and tourism data, tourists profile, robust and efficient tourism policies etc.) adaption/application of VR to tourism sector of the nation is ultimately for the benefit of wealthy nations who develop VR machines, gadgets and applications to the detriment of developing nations whose destinations will be abandoned due to security challenges, weak tourism policies and institutions like Nigeria.

Virtual reality may be adapted for tourism development in developing nations but its adoption should tally with the inherent realities of the country that wish to use it. Most developing nations have weak tourism policies and these policies were prepared prior to advent of VR; and such policies have no provision for features and effects of VR on tourism. Nigeria tourism policy seems to be outdated and the need for its review has been emphasized (Abdulrahman, Muhammad & Muhammad, 2014) if tourism should be sustainably developed. Making tourism policies that will capture the dynamism of VR in Nigeria tourism industry has become imperative, since policies are as the bedrock of any meaningful development.

Furthermore, different states in Nigeria accord tourism different status. It is germane that each state of the federation should look at different versions of and options of VR to apply or adopt in their state; this is not unconnected to varieties of tourist attractions which VR application may



favor some destinations more than others as discussed before. Meanwhile, NTDC should lead or direct the path that will be favorable for the national interest. Therefore, the onus is on NTDC the major player in Nigeria tourism industry, to engage tourism stakeholders across the federation for the way forward in the use of VR for the industry; otherwise, with advancement in VR technology, Nigeria tourist sites may be left in the global tourism circle.

The future appears endless, so is the future of VR technology and its application to tourism, therefore, tourism professionals in developing nations need urgent empirical evidence of the merits and demerits of VR in order to prepare for the unique opportunities and challenges the VR technology will bring in the near future.

Suggestions

VR comes with its own challenges and advantages, it is my submission here, that NTDC being the apex National tourism body should delve deeper into the intricacies of VR and how best to adapt it for sustainable tourism development in Nigeria. The need for empirical studies on VR application in Nigeria tourism appears inevitable. An empirical study will either support or reject the use of VR in the industry. In the nearest future, advancement in VR technologies will allow unique and realistic experiences.

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