

Digital Literacy and Space Technology in Nigeria

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Abstract - The paper probes into the concept of literacy and its application to the space technological sector in Nigeria. Literacy has been applied to virtually all aspects of human endeavors and so, a mere definition of concept is no longer expedient. The need becomes imperative to visualize literacy within the framework of space technology in order to move with the tide and current of globalization which grossly affect many developing nations like Nigeria. The paper is divided into four parts. The first section redefines literacy in order to understand the possibilities of meanings based on the perceptions of James (1984), Onukagu (2008), Arua (2009) and Ajayi (2009) that conceptualize on the complex nature of literacy and its indispensability. The second part visualizes the role played by literacy in educating technological advancement in Nigeria bearing in mind that In 1999, the Federal Government of Nigeria approved the Nigerian Space Policy and the implementation of the space program as outlined in the policy, commenced with the establishment of a National Space Research and Development Agency (NASRDA), under the Federal Ministry of Science and Technology. The third section underscores the socio-economic relevance of literacy in enhancing global space technology for Nigeria while the fourth section relates Ajayi's projection in a meta-critical manner to see how literacy rethinks the state of the mind in enhancing excellent technology so that Nigeria can become a world power. The theoretical framework for this paper is the "Transformational Theory". The theory opines that "learning occurs as a result of transformation of participation in culturally valued activities" such as space technology. Friere (1972), Rogoff (1994), Stolle (2007) and Ikpeze (2009) define this theoretical framework by stimulating knowledge, reading and interpretation of concept to human society. The paper emphasizes practical findings to stimulate excellence and literacy relevance in science and technology.

(Index Terms— Literacy, Nigeria, Space and Technology)

I. INTRODUCTION

From the traditional perspective, literacy has been projected as the ability to read and write at considerable adequate level of proficiency that facilitates communication. As a result of global literacy arising from globalization, we could mention technological literacy, visual literacy and literary literacy which underscore the essence of adult and adolescence literature (Lasisi Ajayi 2009:583). Literacy is a complex phenomenon that has affected virtually all aspects of human endeavours. The complexities have addressed all aspects in a way that it lends axiomatic credence to the

understanding of man's activities in stimulating excellence. However:

This complex situation is further exacerbated by the growing influences of multimedia technologies and space technology which have produced a shift in what counts as texts and what it means to be literate. It is no longer just the ability to read and write; it is now viewed as the ability to construct and understand the different possibilities of meanings made available by differing textual forms associated with diverse domains such as the internet, videograms, visual images, graphics and layouts (585).

In broad terms, literacy is the ability to make and communicate meaning from and by the use of a variety of socially contextual symbols. Within various levels of developmental ability, a literate person can derive and convey meaning, and use his knowledge to achieve a desired purpose or goal that requires the use of language skills, be they spoken or written. A literate person can mediate his world by deliberately and flexibly orchestrating meaning from one linguistic knowledge base and apply or connect it to another knowledge base. For example, knowing that letters symbolize sounds, and that those sounds form words to which the reader can attach meaning, is an example of the cognitive orchestration of knowledge a literate person conducts. Literacy is "not in isolated bits of knowledge but in students' growing ability to use language and literacy in more and broader activities". The definition of literacy is dynamic, evolving, and reflects the continual changes in our society. Literacy has, for instance, expanded to include literacy in information and communication technologies and critical literacy. (http://www.bridgew.edu/library/cags_projects/ldubin/Definition%20of%20Literacy.htm)

Technology has taken different shapes in facilitating literacy in different ways. These ways are either individualistic or collective. Space technology, however, is a new invention in Nigeria that has showcased reading and writing in a more globalized phenomenon. To understand the space and literary framework, we shall visualize the relationship between technology and literacy. According to the UNESCO's space research, many changes are now taking place throughout the world and they are of enormous concern and relevance to adult learning. Adults are under pressure to develop and utilize new knowledge frameworks, skills and value systems. It is time for

literacy providers to have the courage to experiment, to try out new alternatives and renew the assault on illiteracy. Innovations in technology can improve literacy programmes and accelerate the spread of literacy. This forges an inevitable link between the use of technology and literacy. With reference to the results of a panel discussion on “Literacy and Technology”, held during the CONFITEA V (Hamburg, 14–18 July 1997) as quoted by UNESCO, The term technology here embraces educational *technologiessuch* as the Internet, TV, interactive video and radio. The aim of the panel discussion was to explore the relationship between literacy and technology, and the potential role of technology as a tool in literacy provision.

The important question was not whether, but how technology can adapt to changing demands. The panel was chaired by Jan Visser, UNESCO LWF, Learning Without Frontiers (LWF), UNESCO, France. Mohamed Maamouri, International Literacy Institute (ILI), Tunisia, served as discussant. The remaining panel members were: Alan Tuckett, the National Institute of Adult Continuing Education, England and Wales, (NIACE), UK, Minda Sutaria (INNOTECH, Philippines), Shigeru Aoyagi, Asia Pacific Cultural Centre (ACCU) UNESCO, Japan, Sibiri Tapsoba (IDRC, Senegal), and Christopher Hopey, National Centre on Adult Literacy, USA. An important observation is that technological innovation with costs of technology facilitates the introduction of technology into literacy. The real concern is how to ensure that literacy providers have the capacity and total will to apply the technology appropriately. (www.unesco.org)

II. LITERACY AND TECHNOLOGICAL ADVANCEMENT IN THE WORLD

With reference to the UNESCO findings, technology is viewed as a tool for improving literacy programmes. Today's world is moving towards a more open and global society. In order to deal with its changing demands, people need to learn how to cope with change and at the same time to interact constructively with it and retain control of the processes involved. Alternative strategies need to be identified to ensure greater learning effectiveness and meet the literacy needs of masses of people in a timely and economical manner. Technology is a useful tool to improve the quality and the efficiency of literacy provision (James, 1984). It helps create learning environments ideally suited to the needs and interests of previously unreached populations and offers new learning opportunities as vistas. ‘It stimulates learners to be more creative and innovative’ (Onukaogu,

2008). In fact, it ‘revolutionizes the way we handle information - with the focus moving from teaching to self-directed learning, from learning as a one-time event to a lifelong learning process’ (Ikpeze, 2009) and ‘it conveys meanings’ (Arua, 2009).

Technology is introducing radical changes, with non-formal and informal education assuming an important place in addition to formal education. Non-formal education is already improving because of the advantages of technology. It has proved to be effective in reaching out to vast unreached school-age populations. In fact, the distinction between those categories is becoming increasingly irrelevant. Technology is not an end in itself or an answer to all educational problems. It is a tool to improve literacy programmes, raise awareness about the literacy problems and reach a vast number of unreached illiterates. Technology deals not only with textual literacy, but also with visual literacy. Adopting technology demands also a process of selection and decision making regarding which technology is appropriate, by and for whom it is to be used and for what kind of communication and content. This process is itself useful because it helps to crystallize ideas, create visions, and motivate greater numbers to pursue literacy through technology. It encourages participation. (www.unesco.org)

Technology does not operate in a vacuum. It is important to view technology in the wider political, social and economic context, rather than merely defining it in terms of hardware and software packages. By considering all of the interrelated components, technology can create learning environments suited to the needs of the learners and be made highly relevant to literacy programmes. Technology offers the possibility of quality education for all in less time than required by traditional strategies, provided that its deployment is well thought out, planned and subject to continuing evaluation and renewal. The following are some of the principles in planning the integration of technology into literacy programmes: Depart from existing strategies and structures. This might require using a combination of old and new technologies. Focus on affordability of initial investment in setting up the system. Include a training programme in the use of technology. This often requires the largest investment, yet it is most crucial to successful implementation of technology. It includes issues such as: – commitment to a long-term plan for maintenance and support; – commitment to periodically upgrading the system; Be flexible about time schedules. There should be no definite deadline for introducing technology. It is more important to seek the best

solution. In this context, it is important to think about the possible marginalization of people, and the creation of new zones of power depending on the advantages being created for some through technology. For technology to play its full role, it should be accessible to those who have been deprived of it in the past. If all societies in all their diversity are to be motivated and persuaded that reading and communication matters really, then their voices must all be heard. Technology should be for people's empowerment (www.unesco.org).

III. THEORETICAL FRAMEWORK: TRANSFORMATIONAL THEORY

The theoretical framework that is best suitable for the understanding of literacy and space technology is transformational theory; this is because transformational theory deals with the creation and change of a whole new form, function or structure. To transform is to create something new that has never existed before and could not be predicted from the past. Transformation is a "change" in mindset. It is based on learning a system of profound knowledge and taking actions based on leading with knowledge and courage. Transformation occurs when leaders create a vision for a system to continually question and challenge beliefs, assumptions, patterns, habits and paradigms with an aim of continually developing and applying management theory, through the lens of the system of profound knowledge. Transformation happens when people managing a system focus on creating a new future that has never existed before, and based on continual learning and a new mindset, take different actions than they would have taken in the past.

A theory of transformation means there will be a profound change in structure that creates something new. The system of profound knowledge provides the *method for transformation*. Transformation occurs through a system of continual questioning, challenging, exploration, discovery, evaluation, testing, and creation of an organization's management theory and application; beginning with the realization or revelation that the organization's current thinking (i.e., management theory) is incomplete, limiting, flawed, or even worse – destructive. In transformation, there is no known destination, and the journey has never been travelled before. It is uncertain and unpredictable. It embraces new learning and taking actions based on the new discoveries for leading transformation, Dr. W. Edwards Deming offers the system of profound knowledge as our new lens. It includes appreciation for a system, knowledge about variation, theory of

knowledge, and theory of psychology. (Marcia Daszko and Sheila Sheinberg, 2005).

Literacy and space technology give room for new innovation that incorporates new changes. New changes are the framework of transformation. Transformation, therefore, helps in the development of space technology because it is a new direction for Nigerian economy and literacy. Domesticating Nigerian innovation in this area of literacy development could make Nigeria to strive as future world power! Friere (1972), Rogoff (1994), Stolle (2007) in Ikpeze (2009) conceptualizes transformational theory within techno-education perspective. Their notion is good for a proper placement of literacy and space educational perspective. According to these scholars:

learning occurs as a result of transformation of participation in culturally valued activities and how people develop is a function of their transforming roles and understanding in the activities in which they participate" Through participation in culturally relevant activities, individuals appropriate new ideas, attitudes, skills and practices or transform and reconceptualize the old. Everyday human activity "consist of actions and reflection: it is praxis; it is transformation of the world".

As we use tools and language to shape action, tool use changes us, even as we change the tools Through integrating technology in one graduate literacy course, observing novice teachers and reflecting on my actions, I worked to transform my knowledge, skills and pedagogy as well as my students' competencies in using technology for instruction. Transformations involve, among other things, interrogating one's beliefs and actions. Prior studies indicate that teachers' pedagogical beliefs and knowledge are important factors in their quest for technology integration. In addition, teacher educators trying to integrate technology need to develop a critical disposition toward technology. This implies that teacher educators should be able to develop an understanding of why, when and how to use technology for learning and the ability to model and deliver technology-infused curricula, pedagogy and assessment. They need to help teacher candidates develop technological pedagogical content knowledge (TPCK). TPCK involves "development of subject matter with the development of technology and of the knowledge of teaching and learning".

This framework posits that stand alone technology courses and workshops are not enough to improve teachers' technology integration knowledge and skills. Instead, educators should utilize an integrated approach that fuses technology,

pedagogy and content. TPACK recognizes that the integration of technology should not be done in a generic sense but should be situated within authentic contexts to enable prospective teachers learn content specific ways to use technology (Ikpezi, 2009: 8-9).

IV. TECHNOLOGY: LITERACY AND SPACE TECHNOLOGY IN ANALYSIS

UNESCO research explains different types of technology which can be used to promote literacy, either independently or in combination. The main selection criteria is the appropriateness and affordability of the space technology which is an important source for lifelong and life-wide learning. The Nigerian government wants to borrow a live from this resource when she launched NigeriaSat-1 in 2003. The effect of this scientific innovation enables us to understand the new transformation which Nigeria experienced in learning and industry. This leads to economic transfiguration and educational elevation. Huge numbers of non-literate or marginally literate individuals, for whom formal education has little practical applicability, with little or no reading material in their homes, have regular access to radio and often TV as well. The educational use of television and radio include: generating awareness of the literacy problem developing consumer demand for learning retaining learners in a programme reaching a large number of individuals. The Space Technology facilitates literacy through awareness because national broadcasters are also involved in educational broadcasting as well as specific educational initiatives. Positive feedback on high quality educational broadcasting has shown that people for whom the education system has failed do not trust educators as much as they trust broadcasters. Educational broadcasting often has a motivational function, rather than an instructional function. Experience with the use of computers and other technologies, such as interactive video, suggest that they can contribute to the development of thinking skills and make instruction more individual. They also provide ways to collect and evaluate information efficiently as well as help learners to communicate what they think and feel. Space Technology in Nigeria has developed literacy by inculcating the internet awareness on the people.

Space Technology come with the internet which is another tool that can be used in improving literacy programmes. Though, the adults can be provided with higher quality materials and access to information in homes, workplaces and public libraries. It also provides adults with greater choices which are the key to

*motivation, retention and enriched learning experience. Using the Internet in literacy promotion means learning faster what is happening around the world and having access to almost unlimited resources for the sharing of professional ideas and problem-solving Technologies based on Internet do not need to be expensive. Many people in developing countries, as in industrialized countries, already have the technology, but they lack extra phone lines or faster modems to allow effective and extended networks. In fact, the problem of introducing *space* technology in literacy programmes lies not so much in its cost or the rate of innovation, but rather in the human factors of reinforcing human competence and political will. Does technology increase inequity? Technology often raises the fear of inequity. There are also fears that technology may be a new form of colonization, resulting in reducing diversity. The use of technology can widen the gap between those who have access and those who do not. The dilemma is that introducing new technologies requires an initial level of technological competence in Nigeria (www.unesco.org).*

To fully comprehend the effects and essence of Space Technology in Nigeria, it is expedient to ask these questions? The crucial question is: who will be the user? Will it be an experienced user, or a learner who was deprived of technology in the past? Or should technology-based literacy programmes initially target professional educators and policy makers? Government and non-governmental agencies should be aware of this problem and must address the issues of who will be the users and who will be controlling, constructing and policing the technology. To address the issue of inequity, there is a need for trust, political will and devotion to the people, if the gap is not to widen; respect for diversity of language and culture; promotion of technology for two-way communication. Information should flow from top to bottom and vice versa, as well as horizontally; reliable information on beneficiaries in order to identify clearly how to disseminate information and to whom, while developing different strategies for different contexts. This information may include literacy materials, statistics, relevant organizations, curricula, literacy publications, and a literacy glossary. In the short term, it may be true that technology can widen the gap between those with access and those without it, but in the long term, it is worth remembering that radio and television were once instruments of the rich. It may perhaps be wise to take a time horizon into account when talking about these fears. Summary of existing experiences Below are some of the conclusions from the panel discussion on "Literacy and Technology" during CONFINTA V, Technology has transformed many literacy programmes, by providing

access to information especially in areas of public policy, and by advocating rights of adults and learners. It has made a big difference to the level of funding and resources that flow into literacy.

Space Technology encourages adult learners to be much more creative and imaginative. It offers new learning opportunities for adults, such as instruction online, video, audio and other tools.

Technology provides adults with greater choice which is the key to motivation, retention and enriching learning experience. New technologies also provide new places to learn. Through the Internet and other new technologies adults can have access to higher quality material and more learning opportunities from homes, workplaces and public libraries. This in turn extends resources from local literacy programmes into those places. Technology does not need to be expensive. The crucial point is to make the optimal use of time, energy and staff. Through technology such as the Internet, teachers themselves become adult learners. They learn how to use the computer, how to integrate it into the curriculum, how to organize the resources, how to be creative and imaginative. Teacher training in technology use is absolutely essential for the successful integration of technology into literacy programmes. (www.unesco.org) it is expedient to note that:

The role that technology plays in advancing multiple literacies in the information age is extensive, and this applies as much literacy as it does to higher education. For younger students, technology provides vital opportunities to capitalize on real-life activities, problem-solving skills, and authentic literacy conversations with other learners. Consequently, these learners can both consume and create content in preparation for their future in a connected society. (Brown, J., J. Bryan, and T. Brown. 2005)

Interlinking technology and literacy make sense when it deals with technology not only as a vehicle, but also as an important content area for the promotion of adult education.

The real issue behind literacy and technology is about educators taking a lead in the field of education and providing new ways of learning, rather than waiting for others to tell them

what to do and how to do it. New technologies are not necessarily the whole answer to the problem of delivering literacy programmes. There is room for both old and new technologies. Technology must be appropriate and should help people to learn as quickly, as economically and as effectively as possible.

Technology properly used, i.e. in a way appropriate to the communities that learn through them, can facilitate the learning of new higher level skills needed for a world which is becoming increasingly global and which is therefore more and more in need of local empowerment. Technology should be well thought out and planned for that context.

There should be a continuing evaluation and revision process to promote the best mix of technologies. It is no longer cost-effective to ignore technology. In particularly, adult education, the least well funded area of education, just cannot afford not to use the technological opportunities (www.unesco.org)

V. THE SPACE TECHNOLOGICAL MOVEMENT IN NIGERIA

According to GLOBAL SECURITY, in 1999, the Federal Government of Nigeria approved the Nigerian Space Policy and the implementation of the space program, as outlined in the policy, commenced with the establishment of a National Space Research and Development Agency (NASRDA), under the Federal Ministry of Science and Technology. The mission of NASRDA is to vigorously pursue the attainment of space capabilities and the enhancement of the quality of life of its people. The space policy has a 25-year program tailored towards the development of Space Science and Technology in Nigeria through research and development (R&D), as well as capacity-building in the fields of science, engineering, space law and administration for sustainable national development. The policy has both short- and long-term space mission programs. The implementation of the programs focuses on the achievement of the United Nation's Millennium Development Goals (MDG's) and other regional and national socio-economic development objectives as highlighted by the New Partnership for Africa's Development (NEPAD) and National Economic Empowerment & Development Strategies (NEEDS).

Nigeria intends to vigorously pursue the attainment of space capabilities as an essential tool for its socio-economic development and the enhancement of the quality of life of its people. The Nation shall achieve this through research, rigorous education, engineering development, design and manufacture of appropriate hardware and software in space technology, including transport and payloads, such as satellite, telescopes and antennas for scientific research and applications. The Government shall also foster Bi-lateral and international cooperation in all aspects of Space Science and Technology to ensure that Nigerian Scientists and Engineers benefit from global developments in the space enterprise. The vision of Nigeria and Africa is to

attain competence and capabilities in relevant areas of space science and technology that would impact on sustainable socio-economic development and improve the quality of life of Nigerians and Africans, and to make Africa pro-active and also compete in space exploration.

For the attainment of space capabilities, Nigeria's space efforts focus on research and rigorous education, engineering development, design and manufacture, particularly in the areas of instrumentation, rocketry and small satellites as well as in satellite data acquisition, processing, analysis and management of related software. The establishment of a national earth observation station for remote sensing and satellite meteorology data acquisition enhanced the indigenous ability to adopt, modify and create new techniques for national resources inventories, monitoring, evaluation and management. Nigerian Space Agency – the National Space Research and Development Agency [NASRDA] was established with a mission to pursue the development and application of space science and technology for the socio-economic benefits of the nation and the Nigerian space programme constitutes an important component of the national strategy for socio-economic development through space application and participation in the global industry. The overall agenda of the Nigeria's space agenda is geared towards sustainable national development and security including the development of new resources, understanding of our environment and the maintenance of national security. The National Geospatial Data Infrastructure [NGDI] coordinated by [NASRDA], will facilitate efficient production, management, dissemination and use of geospatial information for the attainment of the Millennium Development Goals (MDGs).

Nigeria launched its first satellite, NigeriaSat 1, into orbit in September 2003, after Nigerian experts underwent training in London. The National Space Research and Development Agency (NASRDA) also embarked on the next generations of satellites: a communication satellite to be called NigcomSat-1 and a high resolution African Resources Management Constellation (ARMC) satellite, NigeriaSat-2. Further plans to develop a communication satellite were in progress; it was recognized that ineffective communications represented one of the greatest barriers to socio-economic development and NigComSAT would be designed to contribute to providing an adequate telecommunications system throughout Nigeria and regional coverage to ECOWAS countries. Nigeria realized the importance of this technology, did not hesitate in leapfrogging to the technology. Satellite

can perform several different operations depending on the type of payload. Most notable are Remote Sensing Satellite, Communication Satellite, Astronomical Satellite, Meteorology Satellite, and Space Station. Nigeria is presently pursuing the development of the first two types of satellite. Short Term Program Objectives are access to real-time and affordable Earth Observation data, (meteorology and remote sensing), for weather forecast, resources inventory and environmental and disaster management, through either direct purchase of images from existing satellites or the development of (a) Earth observation satellite and (b) low cost ground receiving station. Access to affordable satellite communication back-bone, such as the on-going NigcomSat-1 project and Rascom, and infrastructure to meet the need for ICT-based investment/business opportunities and socio-economic development (www.globalsecurity.org/space/world/nigeria/index.html)

VI. LITERACY AND SPACE DEVELOPMENT IN NIGERIA

Part of the implications of space technology in Nigeria is literacy awareness that comes with it. Economic and social factors are also considered valuable. With the transformation of Nigeria into the space technology, the country is gradually graduating into the type of strategic scientific technology that is found in the USA, Britain, Germany, China and Japan. Reading and writing are now taking advanced methodology. 'In response to the new demands of the information age, *space science in Nigeria* now integrates technology across the curriculum. Traditional literacy instruction involve the use of textbooks, skills lessons, ability groups, numerous worksheets and workbook pages, as well as writing that only the teacher reads. In contrast, literacy in the 21st century *that comes with space technology* requires that children not only communicate with classroom peers, but also read e-books, receive and send e-mail, locate and evaluate online information, prepare reports with presentation software establish dialogue with learned individuals in other regions, and write for both a local and global community' (Brown, J., J. Bryan, and T. Brown. 2005).

Space technology is developing the digital, analytical and theoretical interpretation of literacy in Nigerian reading and writing culture; it is a systematic process in the facilitation of mental and physical development. 'It is indispensable, it is a process in progress, it helps the critical thinking, it evaluates information' (Arua 2009; Onukaogu 2008; Okereke, 1993). In Nigeria, 'academic literacy has a great impact over how a person expresses and presents himself in a scholastic environment- an

environment that presents hypothetical space technology (my emphasis). The tools to effectively read, write and critically think are skills that not only help a person in the scholastic environment, but also in personal discovery. Through positive experiences with academic literacy, people do not only learn to improve their writing and other critical skills, but they also apply this toward learning about themselves and becoming a more confident person in everything they do. Setting a positive environment for students to engage in and become comfortable with their surroundings is an effective way to aid students. Teachers have a great impact on how learners learn to apply their *academic literacy to space technology in Nigeria*. When the support is there, learners know, and feel free to align with space science' (<http://www.megaessays.com/viewpaper/81892.html>)

The concept of literacy clearly has become more differentiated and more expansive in the wake of the technological revolution and the space evolution in Nigeria. As a result, Leu states that literacy is "no longer an end point to be achieved but rather a process of continuously learning how to be literate" (as quoted by Brown JJ et al). He claims that literacy is constantly changing, not static, and that teachers also must change in order to prepare children for increased technology demands. In the midst of this new environment, many teachers are adopting newer literacy models for classroom instruction. Space technology in Nigeria offers exciting latitude for dialogue in cyberspace and literacy education, which in many respects reinforces the classical notion of literacy introduced by the Greeks—sharing knowledge with others. But instead of interacting with classmates in real time, children can now establish "communities of literates" with anyone, anytime, anywhere. This community-based model of education, along with the multiple forms of literacy that sustain it, provides a foundation for preparing students to succeed in an increasingly interdependent, global landscape. The development of space technology in Nigeria explores 21st-century literacy and offers some illustrations of how technology may help educators and students meet the challenges of the future while also expanding the classical ideal of literacy inherited from the past. (Brown, J., J. Bryan, and T. Brown. 2005:17.)

In the new connected paradigm, Nigerian teachers harness the power of computers as communication tools for students to access information and share findings with others. Thus computers are no longer merely vehicles for drill and practice, but vehicles for problem-solving and active learning. This modification requires new understandings of the various ways learners interact with digital media, as well as increased

opportunities for learners to participate within a growing community of literates. When teachers interact differently with technology, students' interactions change also. As Selfe and Hilligoss presciently argued more than 10 years ago, "It is not simply that the tools of literacy have changed; the nature of texts, of language, of literacy itself is undergoing crucial transformations" (18). It is this transformation that informs the appraisal and development of literacy and space technology in Nigeria. Space technology is developing personal human initiative in Africa and in Nigeria to be specific. Emejulu makes a survey of African contributions to world learning when he opines that we should

take short census of African contributions to world learning, science and technology

The Igbo-ukwu bronze technology, the Benin moats and brass works, the Kano city walls, the Nok culture, the Ife bronze works, the Cross River monoliths, the Egyptian pyramids, the great Zimbabwe walls, the Sankore University of Timbuktu, the medical sciences, especially orthopaedics, and Nsibidi writings, to mention but a few. What knowledge base informed these achievements? What became of all these and why?

Like my mother's people and their space science and technology, all of these African contributions to knowledge and the sciences (Emejulu, 2006).

The idea is to show that before the advent of the European, Africans and indeed, Nigerians have strong initiative to learning, development and contribution to knowledge. Space technology is an addition to development in literacy and this has contributed to the examination of new initiative, which explains Ajayi's projection in a meta-critical manner that literacy rethinks the state of the mind in enhancing excellent technology so that Nigeria can become a world power.

CONCLUSION

The paper uses transformational theory to delineate literacy and space technology in Nigeria. It begins with a capsule presentation of literacy and its educational implications in bringing concrete reading and writing revolution to the people. The paper makes a survey of technology and how it affects literacy. Literacy is *indispensable* in the words of Onukagwu and that is why various technologies have addressed literacy. From the traditional medium in reading and writing to the cyberspace technology, literacy has addressed complex human predicaments. The paper shows various areas and problems associated with the space technology and it showcases the need for this technology to be embraced by all in order to facilitate the efforts of

Nigerian government in making literacy an affordable phenomenon.

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