

SPECIFIC APPLICATIONS OF ELECTRONIC-LEARNING IN GEOGRAPHY CONTENT DEVELOPMENT, TEACHING AND LEARNING IN NIGERIAN UNIVERSITIES

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Abstract

The paper examines the specific applications of e-learning in geography content development, teaching and learning in Nigerian universities in this era of digitalization. It starts with a preview of geography definitions and nature, and goes further to x-ray its relevance in National development. The paper however highlights the current trend of withdrawals by the students from the geography class as a result of its vastness. Furthermore, the paper takes a look at ICT and the trend in its use in education, and in the Nigerian context, and specifically examines the nature and importance of e-learning as a special aspect of ICT, as it applies to teaching and learning. Subsequently, the paper examines how e-learning can be applied in geography content development, teaching and learning. Finally, the challenges and involvements in developing e-learning in geography teaching and learning are x-rayed.

Geography and its Nature

Geography as a subject has been subjected to many definitional approaches by various authorities. The word “Geo” is derived from a Greek word which means, “to write about the earth”; and “graphy” means “science about”. On the whole when combined, it means—“the science about the earth surface” (Minshull, 1972:5).

Presenting a more comprehensive definition of geography, Buchanan (1974:96) posits that “geography is the study of the

diverse features on the earth’s surface, such as: its relief; climate, vegetation, soils; economic resources their description, development and distribution, and their interaction with man. Buchanan maintains that geography draws widely from the natural and social sciences, leading to the integration of many disciplines, both in their concepts and contents. Expanding on the horizon of subject, Routledge, Taylor and Francis (1996) state that geography is more than describing foreign places or an attempt of memorizing the names of capitals and countries but an encompassing discipline that seeks to understand the world-its human and physical features through an understanding of place and location (p.11). Concluding their view, Routledge *et al* perceive geography as the spatial connection between people, places and the earth. An analysis of the various definitions portrays certain basic conceptions and values inherent in geography as it deals with the earth, the law of nature, area differentiation, and spatial relationships.

As a result of the nature of geography, its proper understanding will help to keep geography students and research workers on the right track, and provide the basic framework into which all acquired knowledge about the external world can be fitted. To accomplish the above stated purposes, students should be introduced to the philosophy underlying their area of specialization as soon as possible. In turn, this will help geography teachers to

understand what they are teaching, and the value of geography and its relevance, both to education and to everyday life.

Relevance of Geography Education to National Development

The value of geography is embedded in two of the national objectives as stated in the National Policy on Education (FRN, 2004) thus:

1. The training of the mind in the understanding of the world around, and
2. The acquisition of appropriate skills, abilities and competences, both mental and physical, as equipment of the individual to live and contribute to the development of his society. (p.8).

The national objectives stated above can be accomplished using the tools of geography, which has diverse ways of exploring the environment and its people. Geography does this by creating opportunities for exploring the different people of the world, their human activities and adjustments on the earth surface.

Based on the national objectives of education, Nigeria Education, Research and Development Council (NERDC) (2004) developed the geography curriculum and enlists its objectives thus; to:

1. Understand the concept of main-environment relations;
2. Appreciate and develop a sense of responsibility towards one's own society, and intelligent interest in the
3. formation of national goals and policies, especially as they influence the different resources and regions of the area;
4. Develop sympathetic understanding of the people of other lands;
5. Organize and formulate principles according to acquired geographic concepts, which they can use to analyze and interpret spatial problems in their immediate and wider environment. (p.5-6).

X-raying the content of geography objectives as laid down by NERDC, Okpala, (1991) observes that geography is perceived as a versatile, expressive, creative, problem-solving, practical and intellectually stimulating school subject. Supporting these assertions about geography, Gopsill (1973) advises on its proper teaching. He makes it clear that geography teaching is important as it deals with training of citizens and future leaders, to imagine accurately, the conditions of the great world stage.

Geography as a discipline is worthwhile for the development of any society. It's worth stems from its focus on the development of an individual, who will in turn, develop the entire society. Onyige (1991) re-echoing the words of Ejiogu emphasizes that geography is important in our education system, and fundamental to our society. He makes it clear that nobody in any sphere of life can operate comfortably without some knowledge of geography. As an applied science, geography is expected to reflect in the learners' behaviours, as they utilize its knowledge to solve problems in their environment (Adinna, 1990). This is exactly what the present study tends to do through re-positioning the content development of geography, and its teaching and learning using e-learning approach.

Current Trends of Withdrawals from the Geography Class: A Source of Concern

The approach in the study of geography in our universities has been a process of one method replacing the other as a better substitute, in order to curtail its vastness, which has been a source of scare to our students. The trend has not really solved the problems of geography teaching and learning; instead of complimenting one another, it is rather a replacement process.

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This replacement process has not helped to solve the problem of managing the vastness of geography in order to simplify its study. The interests, methods and purposes of increasing number of geographers are changing rapidly, leading to their efforts on researching on the best way to handle geography. Their inclinations however have been towards their areas of specialization as an interim measure to manage the vastness of geography. This method is so pronounced in the university system that it has affected the study of the subject, even in the secondary schools (Adinna, 1990).

Geography authorities now point out that the level of fragmentation in geography is making it difficult for students to understand the true content and scope of the subject. As a result, there is this trend of “withdrawals from the geography class”. The youths are no more showing keen interest in the study of the subject as depicted in a study carried out by Akuma (2002) on attrition rate in secondary school subjects. The findings of the study showed that geography had the highest attrition rate of 73.3%. This is quite alarming when compared to other subjects' attrition rates. Again in the subject enrolment pattern, the author discovered that only 23.5% opted for geography, whereas the other subjects had over 70% representation.

The trends of withdrawals and lack of interest in geography have been sources of concern to geography teachers at all levels of the education system. This led to the formation of an association called the Nigeria Geographical Association (NGA) in 1955, to revamp interest in the teaching and learning of geography in Nigeria. (Nwafor, 2004). He enlists the specific functions of NGA to include:

1. Encouraging the study of geography of Nigeria and other parts of the world;
2. Assisting by all means in its power, in the development and teaching of geography in

the schools, colleges and other educational institutions in Nigeria;

3. Stimulating interest in the study of geography among the general public, and maintaining contacts with other cultural organization in Nigeria and overseas, and
4. Publishing the Nigeria Geographical Journal from time to time (p.216).

Nwafor further explains that NGA has a *special interest* in the teaching and learning of the subject, and organizing of teachers' forum for up-dating the knowledge base of geography.

As earlier stated, it has now become clear that an increasing number of geography authorities are considering new and better approaches to the teaching and learning of geography. This is the only way that geography could be made attractive and competitive to our teeming youths. Geography plays a key role in national development; so its teaching and learning need to be enhanced. This calls for its repositioning in line with the nation's yearning of moving forward in this era of ICT; Hence the presentation of e-learning, which is a special aspect of ICT, as a new method of geography content development, and its teaching and learning in Nigerian universities.

ICT and the Trend in its Use in Education

Eya (2006) sees ICT as a newer, better, faster and more robust means of information generation and dissemination. Simply put, the author states that ICT involves the application of newer technology and communicating same, through sophisticated electronic approach.

Duru (2008) posits that ICT involves the process of learning with electronic means and at the same time, accessing knowledge from the global world through the Internet. It then implies that ICT is a global means of communication using sophisticated technology. As a result of this technology, the world is now knowledge-driven and leading to globalization. The world is

presently marked by increasing emphasis on information, and with modern networking technology, one's ability is enhanced to access and communicate with the wider world.

(Nnajiolor, 2007). Commenting on the loaded benefits of ICT application, Mbachu (2008) states that most of the developed countries have explored the potentials of ICT to transform their educational landscape at all levels of education, particularly *in instructional process*. ICT accordingly, is a capacity building tool that can empower our youths, as they yearn for more knowledge through their inquisitive search. They are eager to catch up with the rest of the youths in the developed economies, as they try to mark their positions in the global economy.

With their built up interests in computer related gadgets, learners in the Nigerian classrooms can be stimulated to learn better as they play with ICT tools. With the use of ICT in education, the world is likely to become more and more connected, and learners/teachers tend to develop more positive attitude to schooling. The author now concludes and says that with the pathway created by ICT, teachers and students are stimulated because, teaching becomes more dynamic which expands the teachers' vision, as well as giving them access to high quality materials.

ICT and Nigerian Education

With the growing trend of ICT being a tool for educational reform, the Nigerian Government formulated and launched an ICT policy in 1987. The Policy was titled – “The National Policy on Computer Literacy and Education” with a major aim of equipping Nigerians at various levels of education with the preliminary ICT tools. In furtherance to the stand taken, section II, sub-section 102 (a & b) of the National Policy on Education (FRN, 2004) stipulates:

1. *A network of educational services centers in Nigeria (NESCEN) shall be set up to provide a forum for exchange of ideas, development and use of innovative materials to improve education.*
2. *All states, Teachers' Resource Centres, Institutes of Education of Universities and other professional bodies shall belong to the network of ICT.*
3. *That government shall provide facilities and necessary infrastructure for the promotion of ICT at all levels of education (p.54).*

These laudable objectives of the government imply that plans have to be made on the proper integration of ICT into the nation's curricula. Also, teachers and students have to prepare to use ICT facilities in their teaching and learning. According to UNESCO (2003), teachers and teacher educators are of central importance in tapping the potentials offered by ICT, to enhance the quality of education. As central actors holding the key to teaching and learning the UNESCO guidelines state that teachers' capacities need to be built up in order to fit into the global trend.

The Nature of and Importance of Electronic Learning (E-Learning)

The term electronic learning is often used more broadly as a synonym for online education. On a wider consideration, e-learning is a subset of ICT, encompassing the application of information technologies, and communicating same through sophisticated electronic approach (Naidoo, 2003). Tend in Eya (2006) simply perceives e-learning as the use of computer-aided-gadgets to aid learning. Rees, Mackay, Martins, Conole and Davis (2008) see e-learning as the application of advanced learning technology that is computer based.

Naidoo (2003) perceives that e-learning is going to be a tool that would help learners, and a good access route to teaching, learning and research materials. He further states that e-learning is a tool that makes delivery of lesson flexible, interactive and long lasting. In agreement with Naidoo, Eya (2006) reiterates that e-learning is the largest and the most challenging application of ICT in the delivery of education. The author sees e-learning as the process of e-literate teachers communicating with e-literate learners, with up-to-date books and information using electronic skills.

E-learning with its web-based facilities provides the learners with exciting opportunities to reach for more educational information. This leads to the development of inquiry mind, creativity and good study habits. Professional isolation that many teachers suffer in the traditional classroom becomes a thing of the past. This is because e-learning connects teachers with other professional colleagues worldwide. By so doing, teachers have access to their colleagues' materials and wealth of knowledge, in addition to sharing their teaching experiences/challenges. With its enriched virtual classroom, e-learning provides direct interaction between teachers and learners of varied backgrounds. In the process, they share real life experiences or occurrences, and discuss events as it happens immediately. E-learning is a good remedial backup tool for teachers who lack certain pedagogical principles for their traditional classrooms, to improve on their teachings (UNESCO, 2003; Naidoo, 2003 and Nnaji-for, 2007).

Specifics of E-Learning for Geography Content Development, Teaching and Learning

In developed countries, most geography departments in the universities offer their courses online using the e-learning approach. E-learning has added advantages for geography studies, as it

offers the opportunity to improve the quality of its teaching and learning (Mitchell, 2007).

Mitchell (2007) highlights the potential advantages of e-learning in geography:

1. Motivation: E-learning motivates geography study easily;
2. Inclusion: By inclusion, e learning has the added advantage of involving so many techniques/strategies at the same time, in the study of geography phenomena;
3. Differentiation: This advantage is the quick way e-learning makes in the differentiation of phenomena on the earth surface for easy study;
4. Geographical Accuracy Precision: E-learning offers geographers the potential of accurate measurement, making way for precision and up to date study of phenomena and their location;
5. Immediacy and Speed: As a result of the fastness of accessing information from the web, geography information are retrieved easily from any part of the world;
6. Spatial Thinking: The author emphasizes the importance of spatial thinking which e-learning offers because of its diverse hypermedia and multimedia kits. These kits help students to develop deep critical thinking, as they study and analyze phenomena;
7. Organization/Collaborative Learning: E-learning technique helps in developing greater creativity in geography students. It leads to more collaborative learning than the traditional classroom can offer. The author reiterates that the use of e-learning in geography helps to create, store, retrieve, share and give feedbacks on works done. He further explains that its use helps to organize and structure learning in a clear, editable and easily accessible way (p.60).

As earlier mentioned, the real object of science in geography is probably its vastness,

which is as a result of its concern with the whole world and the interactions that go on within it. With the converging power of web-based teaching and learning, the way we think about geo-space is changed, as distances are brought closer in an instance using webcams (Mitchell, 2007). Webcams according to Mitchell is the boundary spanning effect i.e. the erosion of boundaries, leading to a trend of borderless world. The various geographical phenomena are brought within a geographical space, thus making their learning stress free and manageable.

Mitchell (2007) goes further to suggest other tools and techniques that can support geography teaching and learning. They include:

- i. *Imaging*: This involves using power point style in presentation and manipulation of geographic data;
- ii. *Interactive White Boards*: This is a medium for collecting geography works and its exhibition for further research. This according to Mitchell leads to presentation of written reports;
- iii. *Watching Video Clips on Geography Phenomena 'In Situ' (on the spot)*: The author sees this method as an exciting means of motivating geography student;
- iv. *Animation Process*: This he explains as the imitation of natural processes;
- v. *Data Gathering, Handling and Drafting*: This method according to Mitchell can be done using a data logger to gather information from various sources, using excel spreadsheet and power point for their presentations and collation;
- vi. *Creating Departmental Website*: This involves building up a geography website on the net based on the latest geographic phenomena around the world (p. 61-62).

Computer/Digital Cartography in E-Learning

Another aspect of geography that scares students is map-making popularly called 'Cartography'. The arrival of computers and their web networks have made the act of map drawing a lot easier. Onyekwelu (2004) opines that cartography in geography studies gives meaning to the concept of space, the study of people, and places around the globe. With e-learning, it becomes obvious that students can easily study cartography because, the whole process is automated. This means that the computer directs and teaches the learners how to draw, following its step-by-step process. This is called "Computer Cartography" or "Digital Cartography or Digital Mapping". The benefits of digital mapping according to Onyekwelu (2004) include:

- a. Enhanced speed of map production and review;
- b. Accuracy of map details;
- c. Automated shading/coloring;
- d. Cartographic data bank readily available;
- e. Data experimentation and enhancement;
- f. Scalar differentiation, and
- g. Map compilation

Geographic Information Systems (GIS) in E-Learning

This is a current technological development in the study of geography that involves the organization of geographic data in software and hardware forms. This process opines Sabin (1999) captures, stores, manipulates, analyzes and displays all forms of geographically referenced information. With the introduction of e-learning, G.I.S. is a little bit easier because, it now involves diverse ways of gathering and storing some of the geographical information.

Ogunsanya (2007) supporting the ease of work in GIS which e-learning offers relates geographical space (geo-space) with cyberspace. According to him, geographical space is

marked by physical location, separated by physical distance. On the other hand, cyber-space is the space of the Information Technology marked by its spacelessness and timelessness. He expresses that both geo-space and cyber-space are channels with the same function, i.e. transmission of information, ideas images and news.

Ogunsanya (2007) simply agrees with the I.C.T. principles which e-learning involves; that there is “de-spatialization” of interaction; the placelessness and timelessness of locations, the dearth of distance/location and free existence (p.76). This implies that the vast geographic data scattered here and there on the earth surface can be remotely gathered and collated without much stress again. It now simply involves the provision of ample time for the geography students to collate the data, and give useful interpretation that will enhance geography study globally.

Challenges and Involvements in Developing E-Learning for Geography Content Development, Teaching and Learning

Rees *et al* (2008) after a thorough study and analyses of the nature of e-learning, and the evolving pattern of geographic studies, present eight-point consideration in the development of e-learning in geography:

1. The investment that is required to develop, launch and maintain e-learning should not be under-estimated. It needs to be regarded as a long-term investment that probably takes at least five years to break even for the institution and for the individual involved;
2. The quality of the teaching materials must be raised substantially to compensate for lack of direct student – teacher contact;
3. The returns to investment are greatest where the learning content is relatively stable. So they make it clear that e-

- learning is well suited to teaching techniques/methods that are tried and trusted, rather than experimental process;
4. The twin-drivers of e-learning are technical innovations and students’ demand. Therefore, they now advise that universities should be committed to developing the infrastructure to support e-learning;
 5. There will of course be ‘Refusniks’. These are teachers who will dislike electronic media. This group according to them may think that the book and journal approach are still the best source of knowledge. For such group, they posit that they should be made to realize that the present era of digitalization has its added advantages for research and teaching;
 6. E-learning does afford the promise of immortality for good teachers because, deposited e-learning materials have a good chance of lasting long as research materials;
 7. There are new possibilities for collaboration in the development of e-learning materials, not just within the institutions, but also across the institutions. This they encourage through shared authorship of e-learning materials. Though challenging, they see it as rewarding in terms of exposure to new paradigms and ways of thinking about learning;
 8. Different approaches to collaboration have both merits and demerits. They point that direct exchange of e-learning nuggets or direct use of repository materials is rarely possible, though adaptation is a necessity. They reiterate that some learning materials are easier to share, while others are not (p.16-17).

Conclusion

As the nation sounds her digital drums, there is the need to have a re-think on our various curriculum contents in various subject disciplines, and their pedagogical applications. Our present day youths are digitally minded, and can only be kept usefully active by re-channeling their creative minds using ICT principles and methods. Hence, the study x-rayed how Geography with its vast nature can be digitally repositioned, to curtail the current withdrawals by students. This can be done through using ICT principles to build its content, teaching and learning.

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