Web-Browsing Competencies of Pre-service Adult Facilitators: Implications for Curriculum Transformation and Distance Learning

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The study investigated the Web-browsing competencies of pre-service adult facilitators in the southeast geopolitical zone of Nigeria. Survey design was adopted for the study. The population consists of all pre-service adult facilitators in all the federal universities in the southeast geopolitical zone of Nigeria. Accidental sampling technique was used in selecting 234 pre-service adult facilitators. The instrument for data collection was a four-point scale questionnaire titled "WEBCQ" (Web-browsing Competencies Questionnaire). WEBCQ consists of 43 Web-browsing competencies. The reliability coefficient of the instrument was established by using Crombach Alpha which came up to 0.78. Two research questions and one null hypothesis guided the study. Mean and standard deviation were used to answer the research questions, while t-test statistics was used to analyze the null hypothesis. The findings of the study showed that the pre-service adult facilitators have Web-browsing competencies to an average level and that male adult facilitators have significantly higher competencies than their female counterparts. Based on the findings, some recommendations were made which include that the country just like most developed nations should embrace the innovative distance learning in the form of online learning, e-learning, virtual classroom, and online counseling knowing that most of the current pre-service facilitators have average Web-browsing competence.

Keywords: Web-browsing, pre-service adult facilitators, distance learning, counseling, curriculum transformation

Introduction

A fundamental issue all over the world today is education for all. The concept of education for all, according to Tahir (2005), is a direct political response to pressures emanating from the public, human rights organizations, and international organizations that realize the symbiotic relationship between education and good governance as well as the respect for human rights and dignity. Among the various interest groups that have continued to advocate for and support the universalization of access to education is the NNCAE (Nigerian National Council for Adult Education). Adult education was defined by UNESCO (United Nations Educational, Scientific, and Cultural Organization) in Nzeneri (2008, p. 9) as:

The entire body of organized educational process, whatever the content, level, and method, whether formal or

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otherwise, whether they prolong or replace initial education in schools, colleges and universities as well as in apprenticeship, whereby persons regarded as adults by the society to which they belong, develop their abilities, enrich their knowledge, improve their technical or professional qualifications or turn them in a new direction and bring changes in their attitudes or behavior in the twofold perspective of full personal development and participation in balanced and independent social, economic and cultural development.

Adult education activities cut across programmes like adult literacy, extra-mural studies, continuing education, distance education, vocational education, extension education, and community education among others. In the vocational education aspect of adult education, there is need for vocational and personal/social information aspects of counseling services to enable the adult students to cope with both the course content and learning situation after many years outside school and learning environment. Counseling, according to Makinde (1988) in Onwuasoanya (2008), is a service designed to help an individual analyze himself/herself by relating his/her capabilities, achievement, interest, and mode of adjustment to new decisions that he/she has made or has to make including engaging in adult education, ways of succeeding in the programme, and possible and available career opportunities. It is a learning process designed to increase adaptive behaviors and decrease maladaptive ones. In effect, it brings out those qualities in individuals that conform to the norms of society, while discovering the anti-social tendencies in them (Austine & George, as cited in Onuigbo, 2005). Counseling also aims at empowering students to learn efficiently and independently, develop certain abilities to reason besides building a positive academic self-concept, and give the students the opportunity to internalize appropriate learning strategies that will enhance their success. This service which is a vital aspect of education can be rendered by professional and para-counselors which include pre-service adult facilitators. For effectiveness and success, they need browsing competencies to be able to source for and disseminate information to their students to enable them to cope with learning. The need to educate the adult members of the society cannot be over-emphasized, because when they acquire basic education, it elevates the socio-political situation of the nation. Those who provide adult education are described as adult educators or facilitators. The driving force to the innovative adult education programme today is distance learning. Several studies in distance education have found that teacher quality was the most influential factor in predicting the success of students in an online course (Rice, 2006). Takur (2005) asserted that one of the strategies of meeting the needs of the distant learners is to assist the learners to become familiar and comfortable with the delivery technology and to prepare them to resolve technical problems. To this end, pre-service adult educators or facilitators ought to be technology compliant. Technology is one of the most essential foundational areas of curriculum planning in the 21st century (Wiles & Bondi, 2011). Hence, the curriculum and even the society at large are being transformed by computers and other aspects of ICT (Information and Communication Technology) like the Web among others.

ICT and Web-Browsing Competencies

ICT is increasingly becoming important in education and in adult education as well. Researches into the integration and use of ICT in education have provided substantial and convincing evidence of its positive impact in teaching and learning (Cox, Abbott, Webb, Blakely, Beauchamp, & Rhodes, 2003). Similarly, researches have shown that both in-service and pre-service teachers are in favor of using ICT in and out of class activities (Gulbahar, 2010). Researchers have also shown that pre-service teachers in developing countries are gradually acquiring ICT competencies (Ofoegbu & Asogwa, 2011).

Gender differences in ICT competencies have equally been widely reported. Olalere (2005) stated that computers are usually linked with mathematics and thus the vast majority of computer teachers are males. In contrast, Ezeugbor (2008) reported no significant difference in the ICT competencies of male and female lecturers. Similarly, Ude (2010) reported that there is no significant difference in the ICT competencies of pre-service teachers of University of Nigeria by gender.

The use of ICT in teaching and learning is an already accepted innovation in many developed and developing nations. In the higher education arena, there are shifts in the views of what education is for, with a growing emphasis on the need not only to enable and support the acquisition of knowledge and information, but also to develop the skills and resources necessary to meet up with social and technological changes, and to continue learning throughout life (Sheard & Carbone 2008). The move includes student-centered approaches and virtual classroom. There is, however, the need to develop strategies for maximum utilization of this innovation.

One of the most important aspects of ICT that is actually driving education is the Web otherwise known as the WWW (World Wide Web) which is a computer-based network of information resources that combines text and multimedia. The information on the WWW can be accessed and searched through the Internet, a global computer network. For effective participation in the current innovative open and distant learning programmes, facilitators should possess Web-browsing competence, because the Web is the core of the technologies of open and distant learning. These competencies ought to be acquired in the process of university education and they include eight major levels, namely:

Level 1: Understanding the Concept of WWW/Internet and Also the Benefits

The student should understand that when computers are connected together they form a network and that the Internet is a global network of computers; the WWW also consists of hyper-text documents linked together and can be accessed using a browser.

The student should be aware of the benefits available through the use of the WWW, such as:

(1) Instant availability of all kinds of information from all over the world;

(2) Information available from educational institutions from all over the world, including course materials;

(3) Access to other specialized Websites for news and entertainment among others.

The student should be aware not only that information can be shared over the Web, but also that the browser is a tool that can be used to access and navigate through the Web and the URL (Uniform Resource Locator) is an address to navigate the Web.

The student should know that a URL is a unique identifier required to identify and access different Websites and also be familiar with the format of a URL, and they should be able to open the browser and do quick launch, use the desktop icon and start menu.

Level 2: The Student Can Access a Location on the Internet by Typing Its URL and Can Navigate Using the Browser's Basic Functionality

The student can type a given URL in the address bar and access the site:

(1) The student can navigate the Web using the browser buttons ("Back", "Forward", and "Reload" among others);

(2) The student should be able to identify and understand the status bar, open a new window or a new tab and enter another URL in it.

The student should understand the concept of a homepage:

(1) The student should understand that the browser may or may not be set to a default page known as the homepage;

(2) The student should understand that the homepage may be changed if required and also be able to change the homepage.

Level 3: The Student Should Be Aware That Data of Different Types Are Available on the Internet and Should Be Able to Identify and Use the Components of a Webpage

(1) Web menus: The student should be able to navigate through a Website using its menu, understand the concept of home for the Website, using its own links ("Back", "Forward", and "Back to top"), and also using the "Back", "Forward", and "Reload" buttons of the browser;

(2) Images: The student should be able to recognize images as part of a Webpage, and should identify which images are actually links and are therefore clickable, and will take them to a new page;

(3) Banners: The student should recognize banners and should know that they are clickable;

(4) Links: The student should know that links point to a new URL and clicking on a link will take them to a new page. The student should also be familiar with the two ways of opening new links (in a new window or in a new tab) and also know that some links can also point to other types of files that may be downloaded;

(5) Pop-ups: The student should be able to recognize useless popups, understand that some parts of the popup may be clickable and also be able to close them;

(6) Buttons: The students should be able to recognize and click buttons where required;

(7) Text-boxes: The students should be able to enter text in text-boxes;

(8) Drop down lists: Students should be able to select items from drop down lists;

(9) Combo boxes: Students should be able to select items from combo boxes;

(10) Video: Students should be able to play video content on the Web;

(11) Audio: Students should be able to play audio content on the Web;

(12) Animation: Students should recognize animation.

Level 4: The Student Should Be Aware of Search Engines and Should Be Able to Use at Least One (e.g., Google) Effectively

(1) Students should be aware of common search engine URLS, such as http://www.google.com and http://www.yahoo.com;

(2) Students can use appropriate keywords and get search results;

(3) Students can navigate results to access desired information;

(4) Students should recognize the list of search results obtained (may be on multiple pages);

(5) Student should be able to access any of the Webpages included in the search results, and navigate through the results;

(6) Can do advanced search using Google;

(7) They should understand the benefit of advanced search (i.e., know that the search can be narrowed down and targeted information can be obtained).

Level 5: The Student Can Reasonably Judge the Reliability of Different Websites and Be Able to Save and Print Data

Can differentiate the quality of content and the reliability of the retrieved information;

(1) Students should be able to identify personal Webpages and academic Websites;

(2) Students should be able to identify well-known news and information Websites (CNN (Cable News Network) and BBC (British Broadcasting Corporation));

(3) Students should be familiar with reliable and well-known Web services, e.g., Yahoo and Google;

(4) Students should be able to identify freely-hosted Websites by looking at the quality and number of advertisements and should then be careful in using information obtained from such Websites;

(5) Students should be somewhat familiar with domain names and know that reliable and established companies usually have their own domain names.

Level 6: The Student Is Able to Use and Manage the Information

(1) Can save data;

(2) Can save Webpages and images from Webpages (being aware that they may have copyrights and cannot be re-used);

(3) Can save documents, video and audio files from the Web;

(4) Can print information from the Web;

(5) Can print Webpages.

Level 7: Students Can Manage Frequently Visited Websites Using Bookmarks, Adjust Simple Browser Settings and Do Minor Troubleshooting (His/her Favorite Websites and Be Aware of Dangers)

(1) Ability to bookmark pages and also be able to categorize and manage bookmarked pages using bookmark manager;

(2) Can understand and change browser settings;

(3) Set and change homepage;

(4) Change appearance as desired;

(5) Locate and delete temporary files, cookies and history;

(6) Troubleshoot minor problems (identify and fix);

(7) Identify if connection to the Internet is disrupted and then re-connect, check if the network cable is connected and if the Internet account is functional;

(8) Identify if the typed URL is correct and fix it if there is a common problem like a space in the URL;

(9) Identify if a popup blocker is working and stop it or activate it as desired.

Level 8: The Student Should Be Aware of the Dangers of Web-browsing, and Should Be Aware of the Concept of Plagiarism and Copyrights

Dangers:

(1) Students should be able to identify and avoid dangerous Websites (virus);

(2) Students should be using the browser popup blocker;

(3) Students should be selective about subscription and giving out their email addresses and other personal information;

(4) Students should be aware of the presence of pornographic Websites and should take appropriate measures, so that they do not inadvertently access them;

(5) Should be aware that many downloads available (especially music) are illegal, may be virus-infected and should be avoided.

Ethics:

(1) Students should be aware of plagiarism and proper referencing procedures;

(2) Students should be aware of copyrighted and licensed materials and should be aware of how it should be used.

The Purpose of the Study

The purpose of the study was to identify the Web-browsing competencies of adult education pre-service facilitators. Specifically, the study:

(1) Determined the Web-browsing competencies of adult education pre-service facilitators in the federal universities in the southeast geopolitical zone of Nigeria;

(2) Determined the Web-browsing competencies of male and female pre-service adult facilitators in the federal universities in the southeast geopolitical zone of Nigeria.

Research Questions

The research questions are as follows:

(1) What are the Web-browsing competencies of adult education pre-service facilitators?

(2) What are the Web-browsing competencies of male and female pre-service facilitators in the federal universities in the southeast geopolitical zone of Nigeria?

Hypothesis

Hypothesis: There is no significant difference in the Web-browsing competencies of male and female adult education pre-service facilitators in the federal universities in the southeast geopolitical zone of Nigeria.

Methodology

The study is a survey of the Web-browsing competencies of final year adult education pre-service facilitators in the federal universities in the southeast geopolitical zone of Nigeria. The population consists of all final year pre-service adult facilitators in all the federal universities in the southeast geopolitical zone of Nigeria. Accidental random sampling technique was used to sample 234 final year pre-service adult facilitators. The sample consists of 39 males and 195 females. The instrument for the study named WBCQ (Web-browsing Competency Questionnaire) is a 43-item questionnaire developed by the researchers based on literature reviewed. The items were weighted on a four-point rating scale of "Excellently well" (EW—4 points), "Very well" (VW—3 points), "Moderately well" (MW—2 points), and "Not applied" (NA—1 point). WBCQ was face validated by three experts in educational technology, adult education, and measurement and evaluation. The reliability index of the instrument was determined by using Crombach Alpha which was 0.78. Copies of the instrument were distributed to the respondents by the researchers and retrieved immediately on completion. Mean scores were used to answer the research questions and were calculated item by item. The interpretations of the means were based on the limit of real numbers: 3.50−4.00 (Excellently well), 2.50−3.49 (Very well), 1.50−2.49 (Moderately well), and 0.50−1.49 (Not applied). T-test statistic was used to analyze the null hypothesis at the significance level of 0.05.

Results

Research Question 1: What Are the Web-Browsing Competencies of Pre-service Adult Facilitators

Results in Table 1 show that the pre-service adult facilitators can carry out the entire Web-browsing

activities to some extent. They can perform items 5, 8, 9, 10, 11, 24, and 28 "Very well" and can perform the rest of the activities "Moderately well". However, they cannot carry out any of the activities "Excellently well". Again, there is none of the activities that they cannot carry out at all. Furthermore, the *SD* (standard deviation) of all the items is below 2.00.

Table 1

Mean and Standard Deviation of the Web-Browsing Competencies of Pre-service Adult Facilitators

S/N	Web-browsing competencies	*N*	Mean	*SD*	Decision
1	I can download files	234	2.29	1.01	MW
2	I can upload files	234	2.79	1.08	VW
3	I can type a given URL in the address bar and access the site	234	2.90	1.08	MW
4	I can navigate the Web using the browser buttons (Back, Forward, Reload, etc.).	234	2.99	0.97	VW
5	I can open a new window or a new tab and enter another URL in it	234	3.00	0.97	VW
6	I can change the homepage	234	2.85	1.11	VW
7	I can identify text on the Web	234	2.94	1.01	VW
8	I can identify images on the Web	234	3.46	0.81	VW
9	I can identify video on the Web	234	3.10	0.97	VW
10	I can identify sound on the Web	234	3.13	0.90	VW
11	I can scroll through a page and make use of Web menus	234	3.32	0.84	VW
12	I can scroll through a page and make use of Images	234	2.77	1.00	VW
13	I can scroll through a page and make use of Banners	234	2.38	1.01	MW
14	I can scroll through a page and make use of Link	234	2.50	1.09	VW
15	I can scroll through a page and make use of Popups	234	2.41	1.14	MW
16	I can scroll through a page and make use of Buttons	234	2.82	0.95	VW
17	I can scroll through a page and make use of Text boxes	234	2.77	1.01	VW
18	I can scroll through a page and make use of Drop down list	234	2.28	1.06	VW
19	I can scroll through a page and make use of Combo boxes	234	2.17	1.09	MW
20	I can scroll through a page and make use of Video	234	2.58	1.09	VW
21	I can scroll through a page and make use of Audio	234	2.63	0.94	VW
22	I can scroll through a page and make use of Animation	234	2.59	1.02	VW
23	I can use common search engine URLS	234	2.92	1.05	VW
24	I can use appropriate keywords and get search results	234	3.10	0.94	VW
25	I can navigate results to access desired information	234	2.86	1.02	VW
26	I can recognize the list of search results obtained (may be on multiple pages)	234	2.97	0.99	VW
27	I can access any of the Webpages included in the search results, and navigate through the results	234	2.64	1.15	VW
28	I can do advanced search using Google	234	3.12	1.04	VW
29	I can identify academic Websites	234	2.92	1.03	VW
30	I can identify well-known news and information Websites (CNN, BBC)	234	2.87	1.13	VW
31	I can identify freely-hosted Websites by looking at the quality and number of advertisements and should then be careful in using information obtained from such Websites	234	2.51	1.01	VW
32	I am familiar with domain names and know that reliable and established companies usually have their own domain names	234	2.47	1.07	MW
33	I can save Web data	234	2.83	1.09	VW
34	I can print Webpages	234	2.74	1.11	VW
35	I can bookmark pages	234	2.60	1.19	VW
36	I can manage bookmarked pages using bookmark manager	234	2.41	1.14	MW
37	I can set and change homepage	234	2.64	1.16	VW
38	I can locate and delete temporary files, cookies and history	234	2.79	1.01	VW
39	I can identify if connection to the Internet is disrupted	234	2.82	1.13	VW
40	I can re-connect the Network cable	234	2.56	1.14	VW
41	I can identify if the typed URL is correct and fix it if there is a common problem like a space in the URL	234	2.53	1.20	VW
42	I can identify if a popup blocker is working and stop it or activate it as desired	234	2.28	1.12	MW
43	I am aware of plagiarism and can carry out proper referencing procedures	234	2.55	1.13	VW

Research Question 2: What Are the Web-Browsing Competencies of Male and Female Pre-service Facilitators in the Federal Universities in the Southeast Geopolitical Zone of Nigeria?

Table 2 shows that male adult education facilitators with a mean score of 136.62 and *SD* of 11.78 have higher Web-browsing competency than female adult facilitators with a mean of 114.91 and *SD* of 27.11. The lower *SD* of males indicated that males are closer to the mean while the higher *SD* of the females indicated that they are far from the mean. The maximum score among the respondents was 167 while the minimum score was 43 and the total mean is 118.53.

Table 2

Mean Difference of the Web-Browsing Competencies of Male and Female Pre-service Adult Facilitators

Sex	*N*	Mean	*SD*
Male	39	136.62	11.78
Female	195	114.91	27.11

Hypothesis: There Is No Significant Difference in the Web-Browsing Competencies of Male and Female Adult Education Pre-service Facilitators

The hypothesis was tested using an independent *t*-test analysis of sex influence on pre-service facilitators' Web-browsing competencies as shown in Table 3. The analysis resulted in a calculated *t*-value of 4.90, $p < 0.05$ and degree of freedom = 232; sig. (2-tailed) = 0.000 with males having higher mean score than females. Based on this, the null hypothesis is rejected, hence, there is significant difference in the male and female pre-service adult education facilitators' Web-browsing competencies. Therefore, males are significantly more competent in Web-browsing than females.

Table 3

Independent Sample T-test Analysis of Sex Influence on Web-Browsing Competencies

Sex	*N*	Mean	*SD*	*t*	*df*	Sig. (2-tailed)
Male	39	136.62	11.78	4.90	232	0.000
Female	195	114.91	27.15			

Discussion

The study showed that the pre-service adult facilitators possess more than average Web-browsing competency. This is because they can carry out most of the Web activities "Very well". However, the result indicated that they cannot carry any of them "Excellently well". This is in line with the findings of Ofoegbu and Ude (2011) that the ICT competencies of pre-service teachers are to an average extent. This is also in support of the view of Rice (2006) that teacher quality is the most influential factor in predicting the success of students in an online course. Since the pre-service adult education facilitators have average Web-browsing competency, they may be influential in predicting the success of students in online course. Furthermore, the study showed that male pre-service adult facilitators have significantly higher Web-browsing competences than females. This finding may be attributed to Olalere's (2005) report that computers are usually linked with mathematics and the vast majority of computer teachers are males. It may, therefore, be deduced that the males who are more mathematically inclined should have higher Web-browsing competencies than their female counterparts.

Implications

The implications of the findings are that the adult facilitators are relatively ready to embrace innovative distance learning, vocational and personal/social counseling for adult education which is the situation in most developed countries. This is very important in a developing country like Nigeria where substantial number of adults is illiterates and need education and vocational and personal/social counseling based on their social, economic, political, and cultural stand to enable them to adjust fully to change and challenges in their lives and society. It is in adult education and guidance and counseling that the greatest emphasis is placed on life-long education as a process and agent of liberation, a tool for adjustment, for self and national development, for cultural awareness and integration, for conscientization or animation, and for group dynamism.

Conclusion

Web-browsing is an important competence for curriculum development and transformation in the 21st century. Much has happened, since the Internet became available to most people. This is because the delivery of information into schools, offices, and homes has become complex. The move is greater for transforming the curriculum towards distance education for the benefit of adult learners. Although access to distance technology has grown vigorously in most developed countries, Nigeria is gradually keying in. The indication is evident with the result of the study which showed that pre-service adult facilitators possess relatively average Web-browsing competence which they will display and use when they get into the field.

Recommendations

Based on the findings of the study, the following are recommended:

(1) Pre-service adult facilitators should be encouraged by their lecturers to acquire more Web-browsing competences during their training period so that they can reach the excellent level;

(2) The country just like most developed nations should embrace the innovative distance learning in the form of online learning, e-learning, e-counseling, and virtual classroom knowing that most of the current pre-service adult facilitators have average Web-browsing competencies and that practice will increase and perfect these competencies;

(3) Teacher education programmes should pay greater attention to adult education and counseling with emphasis on technology integration for improving the lives of adult learners;

(4) Female adult facilitators should be encouraged to acquire Web-browsing competences and equal opportunities should be provided to both sexes.

References

Cox, M., Abbott, C., Webb, M., Blakeley, B., Beauchamp, T., & Rhodes, V. (2003). *ICT and attainment: A review of literature, ICT in schools and evaluation series* (No. 17). Conventry/London. Retrieved from http://www.becta.org.uk/page_documents/research/ict_documents/research/ift_evaluation.pdf

Ezeugbor, C. O. (2008). Information and communication technology (ICT) competence development of Nigeria tertiary institution teachers as a challenge to harnessing the ICT gains in education. In B. G. Nworgu (Ed.), Education in the information age: Global challenges and enhancement strategies (137-143). Proceedings of *First International Conference of the Faculty of Education*, University of Nigeria Nsukka.

Gulbahar, Y. (2010). ICT usage in higher education: A case study of pre-service teachers and instructors. *Journal of Curriculum Studies, 37*, 155-192.

Nzeneri, I. S. (2008). *Handbook on adult education: Principles and practices*. Uyo: Abigab Associates Ltd..

Ofoegbu, T. O., & Asogwa, U. D. (2011). Information and communication technology (ICT) competencies of lower and middle basic science and technology teachers in Enugu State. In T. N. Kanno (Ed.), Globalization of human capacity building through information and communication technology (ICT). Proceedings of *The 32nd Annual Convention and National Conference of Nigerian Association for Media and Technology* (pp. 6-10).

Olalere, M. (2005). *An investigation into teachers' self-efficacy in implementing computer education in Nigerian secondary schools*. Retrieved June 5, 2010, from http://www.ncsu.edu/meridian/sum2005/computer-ed-nigerian-schools

Onuigbo, A. U. (2005). *Essentials of guidance and counseling*. Nsukka: Chukka Educational Press.

Onwuasoanya, P. N. (2009). *Counseling psychology for Nigeria*. Nsukka, Nigeria: Great AP Express Publishers Limited.

Rice, K. L. (2006). A comprehensive look at distance education in the K-12 context. *Journal of Research on Technology in Education, 38*(4), 425-448.

Sheard, J., & Carbone, A. (2008). *ICT teaching and learning in: Anew educational paradigm*. Retrieved from http://www.crpit. com/confpapers/CRPITV88Sherd.pdf

Styles, C. (2006). *How Web 2.0 will change history*. Retrieved from http://maeg.textdriven.com/wpontent/uploads/ 2006/09/Web2+history.pd

Tahir, G. (2005). Nigerian national council for adult education in the current millenium: A rear-view mirror. Paper presented at *Annual Conference of Nigerian National Council for Adult Education* (pp. 1-16), November 27-December 1, 2005.

Takur, A. K. (2005). Linking Web-based learning with non-formal education: The roles of the distance instructor and facilitator. Paper Presented at *Annual Conference of Nigerian National Council for Adult Education* (pp. 337-344), November 27-December 1, 2005.

Ude, M. S. (2010). ICT competencies of pre-service teachers of University Of Nigeria (Nsukka Unpublished B.Ed. thesis, University of Nigeria, Nsukka).

Wiles, J. W., & Bondi, J. C. (2011). *Curriculum development: A guide to practice*. New Jersey: Pearson Education, Inc..

World Bank. (2007). *World development indicators*. The World Bank.