JHER Vol. 22, No. 1, September 2015, pp. 130 – 140

Enhancing Secondary School Home Economics Teachers' Capacity Building in Information and Communication Technology in Anambra State

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Abstract

This paper focused on enhancing secondary school Home Economics ICT competencies in Anambra state of Nigeria. Specifically, the paper sought to determine the ICT competencies needed by the teachers and ways of enhancing the competencies. Two research questions were formulated. The researcher used proportionate stratified sampling technique to select 142 principals, 201 Home Economics teachers and 12 lecturers in Home Economics as the sample for the study. A 26-item questionnaire was used to collect data. Findings revealed that the Home Economics teachers need ICT competencies for downloading, locating, surfing and using the Internet, e-journals, ipods, iphones, blogs, whatsapp, facebook, computers and power-point presentations to facilitate the teaching of Home Economics. Teacher training, provision of ICT facilities in teacher training institutions, making ICT competencies a compulsory prerequisite for teachers' promotion are some ways of enhancing ICT competencies of the Home Economics teachers. Recommendations made included that Government and relevant agencies should provide ICT facilities to teacher training institutions in order to provide Home Economics teachers with needed ICT competencies. Also, promotion requirements of the Home Economics teachers from one cadre to another should include ICT competencies.

Keywords*:* ICT, Home Economics Teachers, Competencies.

Introduction

Home Economics is an interdisciplinary field of study which helps families and individuals to understand and adapt to the effects of social, economic, cultural, and technological changes. According to McGregor (2011) Home Economics is inter-disciplinary, multi-disciplinary and trans-disciplinary. Haapala, Cederberg and Kosonen (2014) defined it as a field of knowledge with numerous marketable skills that make for self-reliance and self employment.

According to Lau and Albion (2010), Home Economics teachers share a distinct subject culture associated with the interdisciplinary emphasis on skills across the major areas of Food and Nutrition, Dress and Design, and Family Studies. Due to its interdisciplinary nature, Home Economics education offers a unique context for bringing together transdisciplinary theoretical and practical information to prepare students for a range of real-life everyday challenges related to individual and family wellbeing, both locally and globally (Dallmeyer, Randall & Collins, 2008; McGregor, 2011; Sleter, 2013). One of such challenges is Information and Communications Technology (ICT).

Information and communications technologies (ICTs) are combinations of devices and services that capture, transmit and display data and information electronically. These include personal computers (PCs) and peripherals, broadband telecom networks and devices, and data centres. ICT is used to describe a wide range of digital devices encompassing computers, communications equipment, telephone, cellular networks, satellite communication, broadcasting media and other forms of communication (Achuonye, 2011; Jarmin, 2010). Huang (2015) perceived Information and Communication Technology (ICT) as a revolution that involves the use of computers, internet and other telecommunication technology in every aspect of human endeavour. ICT expands access to, and understanding of, the world at large (Jones, Heffernan & Albion, 2015). It allows people in all areas of life to benefit from the power of computers as a personal tool, to collaborate in groups and to communicate locally and globally.

ICT is beneficial to Home Economics education because a variety of ICT such as virtual tools, mobile devices, games, computer-assisted instruction and simulations, among others can be exploited to maximum effect (Hamari, Koivisto, & Sarsa, 2014; Huang, Liao, Huang & Chen, 2014; Park & Kim, 2014). ICT can be used for research by retrieving information that could be used for lesson planning, as instructional materials, for selecting learning experiences and content of subjects, as well as designing achievement tests (Huang, 2015; Nalugon & Nuqui, 2015). ICT facilities and systems for learning through ICT such as blogs, wikis, and tele summits are continuously evolving (Haddad, 2007; Ng, Miao & Lee, 2010). According to Chuang, Chang and Chen (2014) digital tools such as camera, i-pad and mobile phones can be used to facilitate learning and equip learners with practical skills.

ICT is useful for Home Economics as a skill oriented subject which has the potentials to equip individual with the basic skills and knowledge for self employment. In the light of this, the three main areas of Home economics (Home Management, Foods and Nutrition and Clothing and Textile)

can be learnt using ICT tools. For instance, radio, television, the web, search engines, cameras, video, e-mail, computer, CD-Rom and DVD are all ICT tools that can be used by any Home economics teacher. Keane (2002) stated that the internet is full of current and interactive information in all the areas of Home Economics. ICT can enhance the quality of Home Economics teaching and learning by providing access to a great variety of educational resources. It can be used in teaching and learning of family living or leisure time activities through the use and integration of electronic discourses, such as email, portal, downloadable-executable-file, face-book, social networking, web platforms, electronic dissertations and e-portfolios, among others (Bouchard, 2011; Romeo, Lloyd. & Downes, 2012; Weller, 2010). The use of digital video, such as the cooking videos, improves pupil behaviour and on task competition, when used as part of a lesson.

Given these various uses and benefits, if designed and implemented properly, ICT use in education can promote the acquisition of the knowledge and skills that will empower Home Economics teachers and students for lifelong learning in the 21st century. There is therefore a need to provide Home Economics teachers with competencies and resources to be able to use ICT to prepare lesson plan, compile lesson materials for the classroom lecture, and test review and development so as to enhance students' learning. Competencies refer to the interactions, skills and abilities to apply ICT facilities such as Internet, cameras, computers, mobile phones and others to teach Home Economics topics. Enhancing Home Economics teachers' ICT competencies is simply about helping them to be able to understand and exploit the potential of ICT in teaching the subject. For this to occur, teachers competency needs have to be identified and some ways of developing the competencies, determined.

Purpose of the Study

The purpose of this study is to evolve some ways of enhancing ICT competences of secondary school Home Economics teachers' in ICT in Anambra State of Nigeria. It specifically;

1. determined the ICT competencies needed by Home Economics teachers to teach topics in the three main areas of Home economics (Home Management, Foods and Nutrition and Clothing and Textile with Internet, computers and mobile phones
2. determined ways through which Home Economics teachers can enhance their ICT competencies.

Research Questions

The study was based on two research questions as follows:

1. What ICT competencies are needed by Home Economics teachers to teach topics in the three main areas of Home economics (Home Management, Foods and

Nutrition and Clothing and Textile with Internet, computers and mobile phones?

3. In what ways can Home Economics teachers enhance their ICT competencies?

Methodology

***Area of the Study*:** The study was carried out in all government-owned secondary schools in Anambra State, Nigeria. Anambra State is one of the five States in the South-East geo-political zone of Nigeria. There are two hundred and sixty-one government-owned secondary schools in Anambra State as at August 2013. There are also two government owned Colleges of Education in the Area that train teachers in Home Economics education. This study was a survey.

***Population of the Study*:** The population of the study comprised 704 respondents. Based on data collected from the Anambra State Post Primary Schools Service Commission (PPSSC, 2013), the population comprised 261 principals and 431 Home Economics teachers who are teaching in the 261 government owned secondary schools in Anambra State. The population also included six Home Economics lecturers in Nwafor Orizu College of Education Nsugbe and six lecturers from Federal College of Education (Technical) Umunze, all in Anambra State. The population of the lecturers is based on a data collected from the Registry Departments of the two Colleges of Education in 2013. Hence the total population was 704 respondents.

***Sample and Sampling Technique*:**The sample for this study comprised 355 respondents (142 principals, 201 Home Economics teachers and 12 Home Economics lecturers) in tertiary Institutions. The proportionate stratified–random sampling technique was adopted by stratifying the secondary schools based on the education zones where they are located. From each education zone, approximately 50 percent of the schools were selected. A total of 142 schools were selected and all their principals (N=142) were chosen as sample. The total number of Home Economics teachers in the 142 schools were 201 and all of them were included in the sample. Finally, all the 12 lecturers in Home Economics in Nwafor Orizu College of Education Nsugbe and Federal College of Education (Technical) Umunze were included in the sample.

***Instrument for Data Collection*:** A questionnaire was used for data collection. The instrument was divided into two parts. Part A comprised 2 open-ended questions that elicited information on the respondents' status, institution and location of the schools. Part B contained 24 items that were separated into two sections. Section A comprised 15 items on the competencies for ICT teaching, while section B contained 12 items on ICT empowerment policies, while section B had. All the items were structured on a 4-point scale of strongly agree,

agree, disagree, and strongly disagree. The instrument was validated by three Home Economics lecturers in a College of Education. Cronbach Alpha method was used to establish the reliability of the instrument. Coefficient alpha values of 0.75, and 0.78 were obtained and considered satisfactory for the study.

***Method of Data Collection*:** Three hundred and fifty-five copies of the questionnaire were distributed to the respondents in their schools and institutions. Only 349 copies out of the 355 copies administered were returned. This represents 98.31 percentage return.

***Method of Data Analysis*:** Mean scores were used in answering the research questions. The cut-off point for decision making was 2.00. The mean of 4, 3, 2, and 1 was calculated to be 2.5. Any mean score below 2.00 was taken as disagree while any mean above 2.00 was accepted as agree.

ICT competencies needed by Home Economics teachers

Table 1: Mean Responses on Needed ICT Competencies of Home Economics Teachers

S/N	Competencies needed by Home Economics teachers:	$\bar{X}_1$ (*N=140*)	$\bar{X}_2$ (*N=1398*)	$\bar{X}_3$ (*N=12*)	Average $\bar{X}_4$	Decision
	Ability to:					
1	download interactive nutrition or fashion review lesson samples from the Internet	3.24	3.29	3.23	3.25	agree
2	locate relevant Home Economics content information from e-journals and reference materials }}}}	3.73	3.64	3.91	3.76	agree
3	download Home Economics pictures and posters from websites to use in class as improvised relevant instructional materials	3.17	3.12	3.43	3.24	agree
4	use iPhone or iPod Touch application to help students with meal planning and family time management	4.00	3.62	3.51	3.71	agree
5	use online simulations and games for practical demonstration lessons on techniques of sewing, dye mixing or leisure time activities	3.46	3.69	3.32	3.49	agree
6	use facebook, drop box or whatsapp to share information	3.37	3.29	3.42	3.36	agree

	with other Home Economics teachers on clothing styles and pattern drafting					
7	use power-point presentations to teach Home Management, Food and Nutrition, and Clothing and Textile Topics	3.26	3.15	3.02	3.48	disagree
8	use the use the Internet to obtain test templates and use as guides for test construction	3.21	3.17	3.56	3.31	agree
9	use mobile phones to teach how to store household inventories such as family income, expenditure, receipts, menus and files	3.00	3.73	3.77	3.50	agree
10	use computer packages creatively in the development of instructional material	3.36	3.53	3.81	3.57	agree
11	use Google sheets to teach basic concept of a budget	3.77	3.89	3.75	3.80	agree
12	use ICT to teach within the time allocated for Home Economics lectures and practical activities	3.64	4.00	3.95	3.86	agree
13	work with students in class to create Home Economics blogs	3.44	3.52	3.18	3.38	agree
14	surf the web and choose recipes to engage pupils and stimulate their interest in food and eating	4.00	3.71	3.64	3.78	agree

Notes: X_1 = Mean responses of principals; X_2 = Mean responses of Home Economics teachers; X_3 = Mean of responses of lectures; X_4 = Average of Mean responses of principals, teachers and lecturers.

Table 1, shows that all the fourteen items had mean scores above 2.50 in the columns for principals, Home Economics teachers and lecturers. This indicates that the Home Economics teachers need to acquire competencies for teaching with ICT in the identified areas.

Ways of Enhancing Home Economics Teachers' ICT competencies?

Table 2: Mean Responses on Ways for Enhancing Home Economics Teachers' ICT Competencies

S/N	Ways if Enhancing Home Economics Teachers' ICT competencies:	$\bar{X}$ (N=140)	$\bar{X}$ (N=197)	$\bar{X}$ (N=12)	$\bar{X}$ Average	Decision
1.	Integration of ICT skills into Home Economics teachers' programmes	3.88	3.41	3.67	3.62	agree
2.	Provision of ICT facilities into teacher training institutions	3.56	4.00	3.77	3.77	agree
3.	Making internet connection compulsory for every Home Economics teachers	2.43	2.22	2.18	2.27	disagree
4.	Every serving teacher should purchase a personal computer	2.11	2.27	2.42	2.26	disagree
5.	Provide Home Economics teachers' opportunities for regular ICT training	3.67	3.11	3.09	3.29	agree
6.	ICT experts should be appointed in schools to oversee the use of ICT skills and strategies in the teaching of Home Economics	3.87	4.00	3.65	3.84	agree
7.	Each school should have a computer laboratory for accessing computer systems and other related applications for teaching Home Economics	3.56	2.98	3.00	3.18	agree
8.	Capabilities in ICT utilization should be compulsory and a prerequisite for promotion of Home Economics teachers.	3.56	3.87	3.34	3.59	agree
9.	Home Economics textbooks should contain guidelines on when and how Home Economics teachers would use ICT for teaching and assessment of learning.	4.00	3.78	4.00	3.92	agree
10.	Teachers of Home Economics should train themselves to acquire basic ICTs skills.	3.71	3.87	3.88	3.82	agree

Notes: $\bar{X}_1$ = Mean responses of principals; $\bar{X}_2$ = Mean responses of Home Economics teachers; X_3 = Mean of responses of lectures; X_4 = Average of Mean responses of principals, teachers and lecturers.

Apart from items 3 and 4, the remaining eight items in table 1 obtained mean ratings above 2.50 in the three columns. The respondents

agree that ten items are some policies for ICT capacity building of Home Economics teachers.

Discussion of Findings

The findings of the study have shown that the respondents agreed that the Home Economics teachers need several competencies for ICT application in teaching. The results are in line with a number of studies on ICT in secondary education (Olibie, 2007; Obikeze, 2007; Ikediugwu, 2008). This finding indicate that to enhance ICT competencies for Home Economics teachers, there is need to equip Home Economics teachers with competencies and understanding on how ICT facilities such as Internet, iPods, and mobile phones as well as ICT applications like simulations and games, facebook, Whatsapp and blogs can be used for lesson planning, content selection and assessment, locating Home Economics content and improvising or developing relevant instructional materials. The teachers should also be able to use ICT for practical demonstration lessons, test development and networking with other Home Economics professionals on issues related to Home Economics teaching. These areas of competence are similar to those identified for Home Economics teachers in Hongkong by Lau and Albion (2010). Also Romeo, Lyolds and Downes (2012) found that teachers in Australia needed ICT competencies to enhance effective classroom interactions, lesson planning, development of instructional materials and instructional assessment.

The competencies identified in this study might therefore to be placed at the centre of all Home Economics teachers training in ICT. According to Ng, Mao and Lee (2010), it is clear that what the Home Economics in Anambra State need are competencies that would embrace both the content, knowledge and skills of ICT in teaching and training including the intention to position ICT within all learning areas of Home Economics as a general capability. The various competencies identified in the present study also indicate that training in ICT for Home Economics teachers should go beyond rudimentary computer applications to the actual use of ICT in teaching and assessment. In this regard, Huang (2015) stressed that ICT competencies should focus on exploiting the potential of ICT to build the professional competence of teachers, to developing their proficiency in classroom management practices, to enhancing the quality of instructions, and others. Hence, UNESCO (2013) recommended that building teachers' ICT integration in teaching requires both general ICT competence (general knowledge on computers and informatics) enhancement and developing special competences needed for pedagogical application.

It was also found out that the respondents agreed on several ways of enhancing ICT competencies of Home Economics teachers. Analysis of the responses reveals that mandatory

training of teaching staff, appointment of school ICT experts, and embedding of ICT teaching skills into pre-service preparation of Home Economics teachers are necessary. The respondents also agreed that ICT competencies should be compulsory and a prerequisite for Home Economics teachers' promotion. This particular finding agrees with Achuonye (2011) that ICT competencies should be compulsory for teacher recruitment and promotion. The finding also agrees with Lau and Albion (2010) who found that Home Economics teachers in Hong Kong agreed that ICT use in teaching and training should be mandatory. As Nalugon and Nuqui (2015) pointed out, this is an important aspect of developing ICT competencies of teachers so teachers can be acquainted with the new developments in ICT even at their own expense. The findings also supported the respective assertions of Futernick (2007) and Romeo *et al* (2012) that for Home Economics teachers to be able to use ICT for teaching and learning, there is need for a major focus on creating and expanding ICT infrastructure as well as teacher training, retraining and support that would lay a foundation for integrating ICT in teaching.

Conclusion

In the secondary education sector, ICT competencies for Home Economics teachers are considered a key to enhancing ICT integration in education. This study has shown that Home economics teachers need to possess a repertoire of ICT competencies for teaching, learning and assessment. The competencies would be possible if relevant strategies are put in place. Therefore, if the identified ways are put in place, serving secondary school Home Economics teachers would be compelled to avail themselves of ICT literacy programmes and possess competencies to use ICT in teaching.

It is the position of this paper that the implementation of the ways identified in this study might contribute to the enhancement of ICT competencies of all Home economics teachers in the system. This implies that all stakeholders in education must work together to enhance ICT competencies of teachers for effective teaching of Home Economics in secondary schools in Anambra State.

Recommendations

Based on the findings, the following recommendations were made:

1. Government and relevant agencies should provide ICT facilities to teacher training institutions in order to provide Home Economics teachers with needed ICT competencies.
2. Curriculum for training of Home Economics teachers must include basic ICT competencies
3. There should be constant sponsored workshops and seminars on competencies for ICT use in teaching for all secondary Home Economics teachers in Anambra State.

4. Teachers of Home Economics at all levels of education should avail themselves of opportunities available to acquire basic ICTs competencies for effective teaching.
5. The Federal Ministry of Education should design and introduce free ICT Teaching Competence Kits (containing ICT training manuals, illustrations and basic tips for ICT assisted instruction) for Home Economics teachers.
6. The promotion requirement of the Home Economics teachers from one cadre to another should include ICT competencies
7. Curriculum improvement effort should be encouraged by government to ensure successful integration of ICT into Home Economics teaching/learning processes in Nigerian schools.

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