# Barriers to ICT Integration in the Teaching of Home Economics in Secondary Schools in South-South, Nigeria.

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## ABSTRACT

*The main trust of this paper was to explore barriers that prevent ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria. Relevant literature was reviewed. This study adopted survey research design and the population was 233 comprising 203 home economics teachers and 30 principals from 10 secondary schools in South-South, Nigeria. There was no sample in this study because the entire population was small enough to be studied as a whole. Two research instrument titled "Teacher-Level Barriers to ICT integration and Teaching of Home Economics Questionnaire" (TLBICTITHEQ) and "School-Level Barriers to ICTI Questionnaire" (SLBICTQ) were used to collect the required data. The questionnaires were validated by three experts one in measurement and evaluation and two in Home Economics respectively. It was tested for reliability using Cronbach Alpha statistics which yielded reliability coefficients of 0.84 and 0.81 for the two instruments respectively. Data obtained after the administration of questionnaires was analyzed by using mean statistics to answer the research questions while the independent t-test was used to test the hypotheses at .05 level of significance. From the analyzed data, the study found that: home economics teachers and principals do not differ significantly in their mean ratings on teacher-level barriers and school-level barriers to ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria. Based on the findings of this study found that: Home economics teachers should be subjected to pre-service and on-the-job training on educational technologies relevant for the teaching and learning of Home Economics. School administrators should encourage the integration of ICTs in teaching by making adequate financial provision for the procurement and maintenance of ICTs and other resources that facilitate their usage.*

**KEYWORDS: barriers, ICT integration, secondary schools, South-South, Nigeria home economics teachers, principals**

## Introduction

Information and Communication Technology (ICT) has become one of the basic building blocks of the modern society. The radical technological transformation in both developed and developing countries has made pervasive impacts on various segments. Therefore, it is not surprising to find an exponential growth in the use of ICT in education all over the world. Some impressive evidence on the effectiveness of ICT in education reveals that it has greater impact than any other innovation (Fluck, 2013). The emergence of the

knowledge economy has also brought much greater emphasis on education. Almost all countries now regard ICT competency as a part of the core of education that facilitates to develop students' capacities for self-learning, problem solving, critical thinking and collaboration etc (Yuen, Law, & Wong, 2013).

Kozma and Anderson (2012) claim that ICTs are transforming schools and classrooms by bringing in new curricula based on real world problems, proving scaffolds and reflection and building local and global communities that include students, teachers, parents, practicing scientists and other interested parties. Similarly, Hepp (2014) state that the roles ICTs play in the educational system can be pedagogical, cultural, social, professional and administrative. Information and Communication Technology (ICT) is defined as a diverse set of technological tools and resources used to communicate and to create, store, disseminate and manage information (Fluck, 2013). These technologies include broadcasting technologies (radio and television) as well as newer digital technologies such as computers and the internet, which enable set of powerful tools for educational change and reform. Information and communication technology is a shorthand for the computers, software, networks, satellite links and related systems that allow people to access, analyze, create exchange and use data, information and knowledge in ways that were almost imaginable (Grimus, 2010).

Technologies like shared software, video conferencing, digital imaging and editing facilities, video walls for image projection and online-learning communities are used in schools that allow creating and disseminating knowledge more effectively. Further, chat and instant messaging, virtual art gallery and virtual museum are tremendous information sharing technologies used in school. Livetext is another new technology that allows teachers to put up content on a web page and enables online classes. Virtual learning systems are useful tools to store information digitally. Interactive whiteboards transform traditional black boards into an entirely different interactive teaching tool. Condie and Munro (2017) describes mobiles technologies, learning platforms and virtual learning environments as information dissemination technologies, which are fast becoming central to whole range of tools that support school activities. Further, Learning platforms and e-portfolios provide a range of ICT based function around communication and collaboration, content management, curriculum planning. E-portfolios are larger personal online space that allow users to store, organize and personalize information, collaborate and receive feedback (Becta, 2015). In addition, diverse tools and services such as email, messaging, discussion forums and blogs could also play a significant role.

The integration of ICT in the secondary education is a national policy across many countries. There is enough evidence to suggest that ICT has the potential to impact on every aspect of the school activities. Thus, schools cannot remain as mere venues in the fast growing technological transformation. They must promote an effective use of ICT in order to promote new way of teaching and learning, information management, professional development, creatively etc. Developing a set of ICT based practices to capture new knowledge, configure and store them in various formats, disseminate them in effective ways for quick grapping, and apply knowledge in more innovation ways would improve services and outcome of schools in diverse aspects. Specially, it would help students to reach their full potential. Rosnaini and Mohd (2008) define ICT integration as the process of determining where and how technology fits in the teaching and learning scenario. It is possible for everyone to enter the websites from anywhere at any time to use the free information by the internet. Information and Communication Technology integration in education have become the most basic building block of modern industrial society in a very short time. Mastering information technology and understanding basic skills and concepts of ICT are now highly

regarded by many countries (Rampersad, 2011). ICT has been increasing at an amazing rate in instruction among teachers. The need for development of ICT is a global resolution and has been a subject of great significance for all mankind (Olaofe, 2015). These technologies have become central to contemporary societies. Whether one is talking on the phone, sending an email, going to the bank, using a library, listening to sport coverage on the radio, watching the news on television, working in an office or in the field, going to the doctor, driving a car or catching a plane, one is using ICTs. Eadie (2010) found that most schools in Australia, United States of America, England and Hong Kong have integrated the innovation of ICT tools to support school practices.

The effective use of ICT in schools continues to rise steadily. ICT is now widely recognized as an essential tool for teaching and learning in the 21st century. It is noticeable that most teachers regard ICT positively and report increased uses of computers for planning, preparing presentations, worksheets and other learning materials, administration, assessment and tracking students' progress (Ofsted, 2014). The effective integration of ICT in education is a complex and multifaceted process. The appropriate use of ICT expands access to education, strengthens the relevance of education to highly digital work environments and raises educational quality (Tinio, 2013). Kimble (1999) shows that technology can result in increased student's self-confidence and eagerness to learn. Balanskat, Blamire and Kfala (2016) presents that ICT can impact positively on students' educational performance, motivation, attention, collaboration and communication and process skills. On the other hand, it shows considerable evidence regarding the impact of ICT on teachers' increased enthusiasm, efficiency and collaboration.

As shown in Newhouse (2012) report, ICT impact positively on curriculum, pedagogy, students' learning and learning environments. It also provides evidences, collaboration and overcoming academic inadequacies with the effective integration of ICT in the classrooms. Newhouse, Trinidad and Clarkson (2012) also noted an effective integration of ICT in the classrooms enables teachers to adopt a balanced pedagogical approach between teacher-centered instruction and learner-centered collaborative environment. Bailey, Day, Day, Griffin, Howlett, Kane, Kirk, McCullough, Mckieman, McMullen, Perfect, Ramsey and Wood (2014) indicated that ICT had enabled teachers to become more efficient with the better management, storages and maintenance of work. It is also important to note that ICT plays a very effective role in the higher education too.

As shown in Kumar and Kumar (2016), the benefits of ICT based practices in the Indian higher education are: improved quality in research and development, curriculum development, administration, students' affairs and planning and development. However, previous literature also indicated the negative impact of ICT in schools. As noted by Kimble (1999), most negative results are in line with the way technology is used in the classroom, the technical expertise and preparedness of teachers and the relative cost of acquiring the technology. Although the use of ICT in education has been a priority in most countries from the last decade, considerable barrier stills exist.

Some schools in some countries have integrated ICT into the curriculum and have transformed teaching and learning with the use of innovation technologies. However, most schools across the world are still in the early stage in adopting ICT and no records for significant improvements due to considerable barriers (Becta, 2015). Therefore, in order to make realistic and holistic solutions for the issues, factors that prevent the full use of ICT in schools must be clearly identified. Balanskat (2016) has divided the perceived barriers in schools into the following categories: teacher-level barriers and school-level barriers. The

teacher-level barriers incorporate factors related to teachers' attitudes and approach to ICT such as lack of ICT skills, lack of motivation and confidence on ICT and inappropriate teacher training. School-level barriers include those related to the institutional context such as the absence and/or poor quality of ICT infrastructure, limited access to ICT equipment, school's limited project-related experience, lack of experience in project-based learning and absence of ICT mainstreaming into school's strategies. Undoubtedly, the foregoing affects the teaching and learning of school subjects one of which is Home Economics.

Home Economics is a subject that is taught at the junior secondary school level using the integrated approach by which the various components namely: Cooking, Child Development, Education and Community Awareness, Home Management and Design, Sewing and Textiles, Budgeting and Economics, Health and Hygiene are taught under the name Home Economics. Home Economics is a field of study that deals with the relationship between individuals, families communities and the environment in which they live… (Babouno, 2012). As domestic science, Home Economics include studies in nutrition, the purchase, preparation and service of food, interior design, clothing and textiles, child development, family relationships and household economics. In modern time, Home Economics teaches people of all genders important life skills, such as cooking, sewing and finances.

Effective teaching of Home Economics in this contemporary society is not independent of ICTs. This is because modern technology offers many tools that can be used in classrooms to improve teaching and learning quality. In addition, ICT has the potential in preparing students for life in the 21st century. Through learning ICT skills, students are ready to face future challenges based on proper understanding (Grimus, 2010). Bransford, Brown and Cocking (2010) believe that ICT use can help students to develop the competencies needed for the current globalization. This is because ICT can help students to develop their skills, boost up their motivation and widen their knowledge and information. Although the emerging technology have become an integral part of teaching, learning and school management, considerable number of barriers have made this ineffective in most countries (Tubin, 2013). In line with globalization and the information highway, the Nigerian educations system is planned to educate students as the future workforce who are technology-savvy, innovative and conversant in technical know-how. This is to enable the nation to be creative and competitive for the current globalization. In conjunction with preparing students for the current digital era, teachers are seen as the key players in using ICT in their daily classrooms. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment. Unfortunately, the researchers have observed that teachers especially home economics teachers are limited in their abilities to deliver the contents of educational materials due the challenges highlighted in the preceding paragraph. It is against this background that this study was embarked upon.

**Purpose of the study**

The main purpose of this study was to investigate barriers to ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria. Specifically, this sought to:

1. Determine the difference in the mean rating of home economics teachers and principals on the extent to which teacher-level barriers prevent ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria.

2. Determine the in the mean rating of Home Economics teachers and principals on the extent to which school-level barriers prevent ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria.

**Research questions**

The following research questions gave direction to the study:

1. To what extent do home economics teachers and principals differ in their mean ratings on the extent to which teacher-level barriers prevent ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria.
2. To what extent do home economics teachers and principals differ in their mean ratings on the extents to which school-level barriers prevent ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria.

**Statement of hypotheses**

The following null hypotheses guided the study:

1. There is no significant difference in the rating of home economics teachers and principals on teacher-level barriers to ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria.
2. There is no significant difference in the mean ratings of home economics teachers and principals on school-level barriers to ICT integration in the teaching Home Economics in secondary schools in South-South, Nigeria.

**Method**

This study adopted survey research design and the population was 233 comprising 203 Home Economics teachers and 30 principals from 30 secondary schools in South-South (Secondary Education Boards, in South-South, Nigeria, 2019). The entire population was studied since it was small enough to be studied as a whole. Accordingly, census method was therefore used to draw the respondents. Two research instruments titled "Teacher-Level Barriers to ICTI and Teaching of Home Economics Questionnaire" (TLBICTITHEQ) and "School-Level Barriers to ICTI Questionnaire" (SLBICTIQ) were constructed by the researchers. Items measuring teacher-level barriers and school-level barriers were develop on a four-point scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE) while items measuring the teaching of Home Economics were developed on a four-point scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The TLBICTITHEQ was made up two sections. Section A contained seven items that were developed to measure the first independent variable while section B contained 10 item that were designed to measure the dependent variable. The SLBICTIQ had seven items constructed to measure the second independent variable making a total of 24 items for both instruments. The questionnaire was validated by three expert one in measurement and evaluation and two in Home Economics. The expert in measurement and evaluation carried out the face validity while the two expert in Home Economics Performed the content validity. Comments that were made by the three experts were used to modify the instrument before the corrected version was administered to the respondents. Principals in the 10 secondary schools responded to TLBICTITBSQ while Home Economics teachers responded to SLBICTIQ out of 233 distributed questionnaires, 230 were copies were retrieved.

To determine internal consistency of the questionnaire, the instrument was pilot-tested on 30 respondents who were not part of the study population in other to produce data for reliability test. Cronbach Alpha statistics was used to determine the reliability of the research instrument which yielded reliability coefficients of 0.84 and 0.81 for the instruments respectively. Data obtained after the administration of questionnaire was analyzed by using mean statistics to answer the research questions while the independent t-test was used to test the null hypotheses at .05 level of significance. The following decisions guided the interpretation of results of the analyzed data. For the research questions, the real limits of numbers were used to interpret the mean values of items. Thus, any items whose mean scores ranged between 3.50 to 4.00 was regarded as VHE while items of scores of 2.50 to 3.49 was regarded as HE. Similarly, any item of scores of 1.50 to 2.49 was regarded as LE and items with mean scores of to 1 to 1.49 was regarded as VLE. For the null hypotheses, a null hypothesis was accepted if the calculated value was greater than the critical value at .05 level of significance and otherwise it was rejected.

**Table 1: Mean rating of home economics teachers and principals on the extent to which teacher-level barriers prevent ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria.**

| S/N | **Teacher-level barriers** | X | S.D | Remarks |
|---|---|---|---|---|
| 1 | Anxiety about advanced technologies | 3.55 | 0.84 | VHE |
| 2 | Lack of self-motivation towards ICTs | 3.53 | 0.81 | VHE |
| 3 | Inappropriate teacher training on the effective integration of ICTs in teaching | 3.62 | 8.84 | VHE |
| 4 | Lack of ICT skills | 3.77 | 0.87 | VHE |
| 5 | Fear of losing professional autonomy during instruction | 3.50 | 0.80 | VHE |
| 6 | Resistance to innovative approach to | 3.64 | 0.85 | VHE |
| 7 | Inability to keep pace with resent developments in ICTs | 3.58 | 0.83 | VHE |

The result presented in table 1 reveals ranged between 3.50 to 3.77 which falls within the cutoff point of 3.50 to4.00 implying that the teacher-level barriers to a very high extent prevent full ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria. The standard deviation ranged between 0.08 to 0.87 indicating the respondents did not differ in their opinions on items one to seven.

**Table 2: Mean rating of home economics teachers and principals on the extent to which School-level barriers prevent ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria.**

| S/N | **School-level barriers** | X | S.D | Remarks |
|---|---|---|---|---|
| 1 | Lack of internet connectivity | 3.57 | 0.86 | VHE |
| 2 | Lack of teacher guides to support ICT integration | 3.53 | 0.81 | VHE |
| 3 | unreliable source of power supply | 3.73 | 8.86 | VHE |
| 4 | Poor maintenance culture | 3.84 | 0.88 | VHE |
| 5 | Inability to retain technology-savvy business studies teachers | 3.69 | 0.85 | VHE |

| | | | | |
|---|---|---|---|---|
| 6 | Limited access to ICT equipment | 3.65 | 0.84 | VHE |
| 7 | Absence of ICT mainstreaming into schools' strategies | 3.55 | 0.82 | VHE |

The result presented in Table 2 reveals that the mean values ranged between 3.52 – 3.84 which falls within the cutoff point of 3.50 to 4.00 implying that school-level barriers to a very high extent prevent full ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria. The standard deviation ranged between 0.81 – 0.88 indicating the respondents did not differ in their opinions on items 8 to 14.

**Table 3: Independent t-test analysis of the difference in the mean rating of home economics teachers and principals on teacher-level barriers to ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria.**

| Variable | N | X | S.D | Df. | t-cal. | t-crit | Decision |
|---|---|---|---|---|---|---|---|
| Home economics teachers | 200 | 3.86 | 0.98 | | | | |
| | | | | 228 | 0.13 | 1.980 | Not significant |
| Principal | 30 | 3.60 | 0.88 | | | | |

The result in Table 3 indicates that the calculated t-value of 0.13 is less than the critical value of 1.980 at 0.05 level of significance with 228 degree of freedom. Since the calculated value is less than the critical value, the null hypothesis was accepted. This means that home economics teachers and principal do not differ significantly in their mean rating on teacher-level barriers to ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria.

**Table 4: Independent t-test analysis of the difference in the mean rating of home economics teachers and principals on school-level barriers to ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria.**

| Variable | N | X | S.D | Df. | t-cal. | t-crit | Decision |
|---|---|---|---|---|---|---|---|
| Home economics teachers | 200 | 3.95 | 0.87 | | | | |
| | | | | 228 | 0.11 | 1.980 | Not significant |
| Principal | 30 | 3.54 | 0.79 | | | | |

The result in Table 4 indicates that the calculated t-value of 0.11 is less than the critical value of 1.980 at 0.05 level of significance with 228 degree of freedom. Since the calculated value is less than the critical value, the null hypothesis was accepted. This means that home economics teachers and principal do not differ significantly in their mean rating on school-level barriers to ICT integration in the teaching of home economics in secondary schools in South-South, Nigeria.

**Discussion**

The findings of the study indicates that there exist no significant difference between home economics teachers and principals in their mean ratings on the extent to which teacher-level barriers prevent full ICT integration in the teaching of Home Economics in secondary schools in South-South, Nigeria. This result reveals that teacher-level barriers limit integration of ICT in the teaching of home economics in secondary schools in South-South, Nigeria. This finding is in line with Balanskat et al. (2016) opinion that teacher-level barriers incorporate factors related to teachers' attitudes and approach to ICT such as lack of ICT skills, lack of motivation and confidence on ICT and inappropriate teacher training. This may be as reported herein because most teachers are more conversant with conventional teaching approaches and traditional technologies while others are yet to appreciate the strategic relevance of ICTs for teaching in a society that is practically driven by modern technologies.

The findings of this study indicates that business studies teachers and principals do not differ significantly in their mean rating on the extent to which school-level barriers prevent full integration of ICTs in the teaching of Home Economics in secondary schools in South-South, Nigeria. This result uncovers that school-level barrier hinder integration of ICT in the teaching of Home Economics in secondary schools in South-South, Nigeria. This finding is in the consonance with Balanskat et al. (2006) view that school-level barrier to ICT integration include those factors related to the institutional context such as the absence and/or poor quality of ICT infrastructure, limited access to ICT equipment, school's limited project-related experience, lack of experience in project-based learning and absence of ICT mainstreaming into schools' strategies. This result may be because most schools are still in the early stage in adopting ICTs while few schools that are equipped with ICTs lack reliable alternative source of power, internet facilities, good maintenance culture, access of ICT equipment and ICT mainstreaming into schools' strategies.

## Conclusion

The place of information and communication technology in education and training cannot be overemphasized. Its full integration in education helps to ensure quality education in various levels of education such as primary, secondary and tertiary. Despite the fact that some educators do not support the introduction and adoption of ICT into the school curriculum, majority strongly feel that ICT is the most valuable tool to overcome the problem being faced in the teaching-learning process. ICT has become a major key tool in acquiring, processing and disseminating adequate knowledge especially in the 21st century. In fact, its effective use has become an imperative tool for measuring development of a nation in the 21st century. Today, the academics are now being challenged by the rapidly growing new information technologies which demand changes in the styles, attitudes and skill towards information handling and dissemination. Therefore, as we move on in the 21st century, many factors are bringing strong forces to bear on the adoption of ICTs in the classroom instruction. As argued above, conventional teaching of Home Economics has emphasized the use of ICTs. Thus, contemporary settings are now favoring curricula that promote competency and performance which require appropriate use of ICTs. This is because ICT acts as a powerful agent that can change many of the educational practices. It is obvious from the foregoing that if deliberate efforts are not made by stake holders in education enterprise in respond to ensure the integration of ICTs in teaching, home economics teachers will not be able to produce digital native for global competitiveness in the foreseeable future.

## Recommendations

Based on the findings of this study, the recommends among others are:

1. Home economics teachers should be subjected to pre-service and on-the-job training on educational technologies relevant for the teaching and learning of Home Economics.
2. School administrators should encourage the integration of ICTs in teaching by making adequate financial provision for the procurement and maintenance of ICTs and other resources that facilitate their usage.

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