The Potential of Information and Communication Technologies in Home Economics Education in Nigeria

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Abstract

The paper reviewed the potential of ICT in enhancing teaching and learning of Home Economics Education in Nigeria, with specific objectives to identify the role of ICT in teaching and learning Home Economics education; to explore teachers' competence in the use of ICT and in the design, production and use of ICT-based instructional materials and; to explore the use of ICT in Home Economics education in Nigeria. Technological determinism theory was use to explained the paper, while the methodology use was review of literatures in order to explore and bring to light the many ways the use of ICT can be used in the area of Home Economics education in order to achieve credible learning outcomes that can improve the livelihoods of teachers and students. The paper concludes that the use of ICT can contribute to raising standards of achievements in home economics education in Nigeria. And due to the COVID-19 pandemic, the present situation pushed government and education institutions around the world, to rethink teacher training to move away from conventional way to online learning as the theory used posit. It was therefore recommended that the use and application of ICT in teaching Home Economics education in Nigerian tertiary institution should be encouraged. Sustainability and provision of adequate ICT facilities in Nigerian schools to aid teaching and learning home economics be encouraged. Further research to test the level of ICT usage by educational stakeholders during covid-19 is recommended.

Keywords: *ICT, Home Economics, Education.*

Introduction

Information and communication technology (ICT) have revolutionized our way of life, as many aspects of human life are directly or indirectly touched in one way or the other by ICT. This is as the importance of new information and skills in our everyday life is continue to evolve, so are our desires for new ways of doing things. Thus because of the dynamic nature of ICT, existing knowledge and skills has been improved or updated to meet contemporary society's need of a changing world (Dauvarte, 2015). For example, due to the Covid-19 pandemic which resulted to a long period of lock-down, pushes many countries to employ the use of virtual teaching for both tertiary, secondary and primary schools. Therefore, the quality of Home Economics education, in both knowledge and skills and their content at all levels and for all age groups will be better when ICT is employed.

The COVID-19 has caused all schools being shut across many countries. Universally, over 1 billion school children are out of the teaching space. As a consequence, education has changed vividly, with the unique rise of e-learning, whereby teaching is assumed remotely and on digital platforms. Study submits that online learning has been exposed to increase retention of information, and take less time, meaning the changes coronavirus have triggered might be here to halt.

It is frequently seen that the usage of Information Communication Technologies in education can improve the quality of teaching and learning, serve as substances for change, and allow teachers and learners for better educational upshots, as postulate by technological determinism theory. ICT can be a valuable tool for bringing high-quality education to all as noted recently during the covid-19 pandemic that ICT provide solution to schools using online classroom that carries together virtual face-to-face networks, assignments and conversations into a single platform accessible on a computer, tablet or mobile phone.

A study conducted by UNESCO (2010) stated that information and communication technologies (ICT) have generated new prospects to enhance the reach and excellence of education. A lot of Higher Education Institutions (HEIs) are using ICT to advance course materials, deliver and share the course content, lectures and presentations, aid communication among lecturers and students and conduct study (HM Inspectors, 2004). The growth of E-learning in tertiary institutions today has been considerable to change the face of many universities around the world including Nigeria which resulted to the distance learning programmes.

With the commencement of the global pandemic triggered by COVID-19, virtually all students across the world have experienced interruption to their formal schooling. Students and parents with deficiency of access to hi-tech devices, high-speed internet, and information to steer online learning are among the most probable to face growing inequalities. This includes many low-income and rural families. As eminent by scholars COVID-19 has uncovered and intensified vast gaps in schools' and families' capacity to backing children's learning.

From the above explanation, ICT is a vital tool for any kind of educational development and promotion. The functions of Home Economics education can be

enhanced by the adoption of ICT in teaching and learning of home economics. According to Home Economics Institute of Australia (2010) in (Mark, 2015), the fundamental focus of home economics education is the wellbeing of people within the setting of their personal, family and community roles. Home Economics education is almost becoming dependent, connecting with others and taking action towards preferred futures that support individual and family wellbeing. Through home economics education, students become empowered, active and informed members of society. Home Economics education has the prospective to play a key role in supporting young people to participate effectively in altering social, cultural and economic times. In order to exploit on this potential, teachers and curriculum leaders need to connect with clients and students' spheres, use modern educational research as a guide to planning and develop practices that are endowing.

Home Economics courses serve diverse purposes at dissimilar levels of education (Swortzel, 2001). In elementary and junior high school, home economics students attain homemaking information and skills that are supportive in daily life. In higher institutions, students are acquainting with all the areas of home economics and to the occupations linked to home economics. Contained by a school curriculum, the study of home economics is sometimes referring to as life education, because much of an individual's life has by tradition centred upon the home and the family. Home economics has been principally concerned with learning how to deal with the hitches and challenges of the home.

Justification of ICT in Home Economics Education in Nigeria

The adoption of Information and Communication Technologies (ICT's) in teaching and learning, Home Economics programmes is a challenge to teachers and students, society and the government. Home Economics education programmes are expected to produce competent Home Economics academics on one hand, skilled and knowledgeable students for the development of the country on the other. There are, however doubts whether these objectives can be attained without the adoption of ICT considering the current pandemic that affects many countries.

Many teachers especially in the developing countries, seemed unclear on how to make the best use of ICT because of an absence of clear teaching aids and technological knowhow of ICT usage (Marivic, 2010). ICT is a new and transforming way to teach and learn. Therefore, the broad objective of the study is

assessed the potentials of ICT on teaching and learning Home Economics Education programme in Nigeria. With specific **objectives**:

1. To identify the role of ICT in teaching and learning Home Economics education in both primary, secondary and tertiary institutions in Nigeria;
2. To explore teachers' competence in the use of ICT in teaching and learning Home Economics education in both primary, secondary and tertiary institutions in Nigeria;
3. To explore the benefits of ICT in teaching and learning Home Economics education.

Theoretical Framework

This study is in conformity with the technological determinism theory. The term 'technological determinism' was devised by Veblen 1857–1929). The greatest radical technological determinist in the United States in the 20th century was Ayres, who was a follower of Veblen & Dewey. Ogburn was also known for his radical technological determinism (Technological Determinism, 2016, cited in Asemah, & Ukwa-Uwaoma, 2017). The first major explanation of a technological determinist outlook of socio-economic development came from the German philosopher and economist, Karl Marx, whose theoretical framework was stuck in the viewpoint that changes in technology and specifically innovative talent, are the primary influence on human social relations and organisational structure and that social relations and cultural practices, initially revolve around the technological and economic base of a given society. Marx's position has become embedded in contemporary society, where the notion that fast-changing technologies alter human lives is all-pervasive (Technological Determinism, 2016, cited in Asemah *et al* 2017). McLuhan (1962) enriched on it was further buttressed by Rogers (1986) through the diffusion theory. The standpoint of the theory encompasses using modern technology such as the Internet to converse new innovations to users can create desire for change and modernisation. On this note, McLuhan's idea of the global village appears to be reality with the Internet. McLuhan's central view about the new media (Internet) is that the medium is the message and can be useful to the internet or to certain forms of the World Wide Web (www) such as online news sites.

Another technological deterministic method grasps technology as a value-free and politically neutral asset that can be cast-off in every social and historical framework. Within this viewpoint, four different points of view can be notable:

1. An overly optimistic view portions the conviction that the development and use of technology can resolve all diverse problems of mankind.
2. That technology is the basis of greatly that is evil in society.
3. That technology is the proponent factor in development.
4. That technology is relentless, tempting, and awesome force, which is a message in its own right.

From the abovementioned technology can change any environment, and in a communication logic, media technology can be equally a channel and a message at the same time. This is the incident in both national and international settings.

Methodology

The paper review to explore and bring to light the many ways the use of ICT can be used in the area of Home Economics education in order to achieve credible learning outcomes that can improve the livelihoods of teachers and learners as proved during Covid-19 pandemic. Many literatures where consulted and reviewed to bring out the potential of ICT to home economic education and other educational sectors towards adoption and utilization amid such pandemic like Covid-19.

The Review

The Advantages of ICT in General Education

Kara 2010, opines that there are numerous benefits to ICT in education, Progressions in information and communication technology have not only aided education but also continue to form the way the field itself develops. With new potent software and applications, along with mobile devices such as table computers, Personal Digital Assistants (PDAs) and Laptops becoming more predominant in the teaching and classroom, information technology bids many benefits to all features of education, as discuss below.

Connectivity

- By using information technology, teachers and students will be more connected in and out of the classroom. For example, some private institutions in advanced world supply each student with a laptop and a tablet computer for school and private use. The aim is to encourage "creative literacy" by connecting students and staff to a wider community outside of school, along with letting students to work with a technology they may very well need in

the workforce. Further more teachers give assignments to students as well as collecting the assignment via email.

Lessons

- Information technology can provide teachers an endless choice of multimedia, software, applications and devices with which to create more exciting, interactive lessons. By adding a dimension to their lessons, teachers have the opportunity to engage more students in their lessons which lead to a more involved, and energetic class.

Access to Resources

- Advancements in networking within information technology have succeeded in connecting more institutions, their staff and students, and therefore made a greater amount of information and resources available. For example, a thesis written by a professor at one university previously may have been shelved or archived only at that university's library. Now, it becomes easy for a student in a university on the other side of the world to have access to that thesis with a simple download.

Distance Learning Programme

- Online courses and web-based training have improved in quality as information and communication technology advanced. Some universities offer accredited courses that may be taken entirely on the Internet, creating more educational opportunities. These courses not only provide students with access to the same resources as students in traditional classes, but they also, typically offer more flexibility, allowing students to complete the work on their own schedules. For those who wish to continue their education but are reluctant to give up their jobs, distance learning courses can be the answer. Market women, full-time house wives and ladies who works in banks and offices with tight schedules may be too preoccupied to attend to traditional or regular class. Distance learning provide the right avenue to acquire nutrition and home-making trainings in the comfort of their offices/houses without compromising their source of income.

The Benefits of ICT in Home Economics Education in Nigeria

Home Economics is a specialized field addressing the problems and needs of the households and welfare is increasingly becoming interdisciplinary in nature. It focuses on the welfare of the individual, the family and their environment, it also

helps rural development by acquiring knowledge, talents and outlooks which will enrich quality of life (Jocy, 2010). In Nigerian context Home Economics are grouped into six (6) major areas which ICT can be up value as the postulate of the technological determinism explains, that technology such as ICT can solve human problem:

1. **Family and Child Development:** deals with every aspects of the family, family relationships, sexuality, pregnancy, child birth and child care. Also involved are the physical, emotional, social and cognitive (mental) development of the child. Use of ICT can be employed to effectively impart knowledge to children at home. As children learn best with animations and pictures, ICT is an effective tool for delivery of lessons to children at home especially with the COVID-19 pandemic that makes formal learning difficult.
2. **Food and Nutrition:** deals with all aspects of selection and purchase of foods, their preparation, processing, preservation, meal management as well as food grouping. ICT can be employed in the demonstration and illustration of the various categories of foods and their classifications such that mothers and households can be reached and enlightened of how to, for example, design nutritious diets for their family members. The ICT and computer can be used to show a flow chart for preparation of certain food product, for development of recipes from the web or the internet. Accessing recipes from different parts of the world to enhance family's nutrition. ICT can be used to perform nutritional analysis of different foods and compare dietary information from different localities and countries.
3. **Clothing and Textiles:** deals with the study of textile fibres, clothing design and construction, care and maintenance of fabrics, apparels and family clothing needs.
4. **Home Management:** deals with proper utilization of human and material resources, saving time, energy and money skilful manipulation and maintenance of household equipment. Use excel to teach budget to homemaker and mothers, use of software programmes for interior design and floor plan to teach floor coverings; using Google calendar to teach reminder of recurring events in the home and workplaces, etc.
5. **Housing and Decoration:** deals with choosing a family house, proper use of various furniture and pictures, good understanding of colour scheme, maintenance and care of home and furnishing.

6. **Consumer Education:** deals with making wise decisions when shopping or paying for services. Through the ICT, the spreadsheets can be used to track the nutritional intake and status of a class of people over time. Money-Controller, SEB Budget Planner, CRPC Budget Calculator, etc. can be able to employed for planning family and spending's.

Information Technology can assist in the acceleration of learning the above key elements of Home Economics or can function as the actual educational structure letting learning to occur. For example, multimedia presentations, knowledge-management software, video conferencing, cloud computing and collaborative document editing are distinguished Information Technology services that can facilitate home economics education as highlighted below in (Chris, 2008).

A. Uses of Multimedia Presentations

Multimedia presentation software can equally empower educators and home economics learners to form, present and chomp information in novel ways. For example, multimedia software may facilitate educators to create a perfect presentation pertaining to any subject matter containing a complete audio-visual narrative experience. In essence, advanced multimedia software can endow home economics educators to design audio-visual narrative themes involving the student's actual participation.

B. Knowledge-Management Software

Knowledge-management software can help home economics learners to organised learning materials for easier access; this consist of categorizing information specific to the learning style of the student. For example, knowledge-management software can endow the user to modify, construct and encouragement information in order of relevance and implant information into audio-visual icons for later rapid recall. Consequence, knowledge-management software befits highly personal, content-rich and hyper-specific to the information ingesting inclinations of the learner.

C. Video Conferencing

Video conferencing denotes a major advantage of Information Technology to home economics education. Video conferencing permits seminars and lectures to occur irrespective of proximity. COVID-19 has made dramatic change to how we teach and interact, adding to conventional ICT platforms (radio and television),

today WhatsApp, Zoom, Google meets, Microsoft teams, Skype meets, Cisco WebEx, Slack and many more played a role in various educational sector.

For example, a classroom full of students can participate in a lecture from a remote location while it's actually occurring. Students' resulting greater accessibility to leaders of academia pertaining to their subject matter benefits both education and society as a whole.

D. Cloud Computing

Cloud computing can allow home economics students and educators to store their data on a secluded server as divergent to their own computer. This consents educators and students to access their data from any computer and from a multiplicity of commuting devices. For example, students will no longer misplace their homework to unpredictable forces. With cloud computing, schoolwork can be stored safely on alternative platforms. Several copies are backed up on these remote computers and are certainly accessible with an Internet connection. E.g. Emails, Blogs, documents etc.

E. Collaborative Document Editing

The capability to collaboratively edit documents from numerous locations is an additional benefit of ICT in home economics education. For example, students and educators using cloud computing to store their homework can also amend the document's access settings to allow multiple editors and contributors to contribute in an assignment. This authorises educators to design work assignments for groups of students working together and, in so doing, nurture a teamwork ethos, making them for the workplace.

ICT Tools and Materials for online Teaching Home Education

Specialized software such as Prima-Vision, Knit Win-nit and Aran-Paint have been developed for use in knitting schemes and for virtual handicraft. They can also be used to create virtual knitted craft and visuals. Structure of main designs for women's garment for upper or entire body can be done using EBA, Pattern CAD or Graft-wares and programmes are:

a) Stitch Art Easy or Adobe Photo Shop for embroidery schemes.
b) DB Weave, Weave-Point or Beads Wicker used for developing weaving products schemes.
c) Astons Design programme can be used for furnishing virtual space.

Moving to a Virtual Classroom

As schools interchange to a remote learning environment, many soft wares were introduced for teaching and learning such software like Teams feature office solution can arrange for an online classroom that conveys virtual face-to-face connections, home-work, archives, and conversations into a single platform easily reached on a mobile device, tablet or Personal Computers. Once Teams is set up, teachers have the capability to create their own class in Teams add nominated students, share lessons, create assignments, collaborate virtually in real-time, and do grading and provide personalized feedback all in one hub.

Benefits Education Institutions can get simply using Teams to produce good remote learning environment:

- Have collaborative discussions with your students by sharing your screen to present your lesson and inspire students to ask questions using the chat feature.
- Instructor can be opportune to show a film by sharing your system audio in a meeting.
- During a lesson, instructor can moderate the class chat by muting students, making them presenters, or if needed, do away with them from the meeting. Lastly, record the lesson so students can review it on their own time.
- Record a class session in instance some students can't join during the live session.
- For valuations, instructor can easily create and grade quizzes in Teams using Microsoft Forms.
- Your students should know your office hours and when they can reach you for questions.
- Inspire students to use Immersive Reader feature in Teams to aid them read messages and comprehend assignment prompts, allowing them to follow along and contribute.
- Create a Fun Channel. Devise a virtual science fair or poetry reading group. This motivation goes comprehensively with students of all ages.

Ways of Using ICT (Internet) to Facilitate Learning Home Economics:

- Generate an **Email** account that can be used by students to connect with the teacher. Make available the email address to all the students and ask them to offer you with theirs. Create an email list i.e. (yahoo group) where you are adept to quickly send out a mass email to all your students with vital

information or last-minute information. Email are used as a method to receive and send reports, more so, bring up to date for contemporary projects and send documents necessary for the class.

- Generate an online **Message Board** that bids students with the ability to post messages to one another regarding homework, projects and other projects i.e. (class Blog, Wiki's etc). Instructor can use the message board as an open place to post information and notices. The teacher can also post the fortnightly homework on the message board as a reminder to students.
- A teacher can generate an online **Forum** that gives students the capability to connect with one another publicly i.e. (Facebook account, Twitter, To Go, Zoom, Google meets, Microsoft teams, Skype meets and Cisco WebEx). Many times students are capable to answer one another's questions without teacher involvement in other words message board is one way for students to clear up any confusion. The teacher can assign a moderator to all the time oversee the discussion that is being posted and part of his responsibility is to report any mishandling and take appropriate action in response. The teacher creates study groups, using the online forum, making information easily accessible to one another to students.

Advantages of Online Learning:

Hana, (2012) highlighted some of the advantages of online learning as to:

1. **Better Accessibility.** As the schools were shut down, learners still have the liberty to absorb content and engage with peers, at a time and site that they will learn best. The educational experts apprehend that not every learner is the same and sitting in a classroom for hours to learn about a subject which might not be effective for everyone. A virtual classroom allows learners to comprehend topics on their own terms, on many different devices which is use anywhere there is internet.
2. **Timetable Flexibility.** The ease of accessibility of an online learning platform gives learners the opportunity to take a break at certain times of the work day to take a class. This allows students to learn at various times of the day, such as during a lunch break, or on the bus to and at home. This type of flexibility is not possible with physical classrooms.
3. **Information Retention.** For many, online instruction delivers a more effective learning experience because of the ability to have short, collaborating modules that can be repeated if needed. These modules also referred to as micro-learning, which help learners find what they need at a

time, and help break up learning to make it more compliant and impressive.

4. **Speedy Feedback.** Once virtual classroom is being used for acquiescence, or another type of learning topic that needs a test of knowledge, learners can get abrupt feedback on how well they understood the information. In traditional classrooms, reaction could take days to disperse, and by that time, the view won't be as strong to the learner. In a virtual classroom, managers also would have additional advantage of being capable to track these knowledge tests for their records.
5. **Augmented Participation & Commitment.** Many methods were identified to share information in virtual classrooms through chat and ranking features, as well as social learning. The collaborating comment and share features help learners employ and adapt the application. Virtual also allows learners who may not be as comfortable with interrelating in-person chance to contribute. Taking note of features like the rating and comment features also allows managers to define the quality of their content and adjust consequently to ensure the most effective learning experience.

Conclusions

It is evident that by accumulative the pace of learning, and motivation among students and teachers, the use of ICT can also back to raising standards of attainments in home economics education in Nigeria. Owing to the COVID-19 pandemic, the present situation pushed government and education institutions around the world to reconsideration of teaching and learning to change away from conventional way to online learning. The presidential task force (PTF) on convid-19 even advised the likelihood that schools in Nigeria might remain shut until the end of year 2020 as the pandemic shows slight sign of slowing down.

The situation required a better plan for teachers and school owners in designing and conveying remote studies for students at all levels as the technological determinist posit. Many studies have discovered that the formerly reluctance to embrace technology among some developing countries educational establishments, teachers and parents has been spun around by the pandemic, as many are now dependent on online and distance education. With this swift shift away from the classroom in quite a lot of the world, some are still wondering whether the adoption of online learning will continue to persist the post-pandemic, and how such a change would impact the global educational sector.

Recommendations

Consequent to the conclusion of this review, it is recommended that;

1. As the pandemic persist Nigerian government should provide adequate ICT training to bring teachers and students to an adequate level of technical expertise so that learning goals on ICT can be met.
2. All educational stakeholders in Nigeria ought to take advantage of technological developments, containing the application of ICT in teaching and learning, where suitable.
3. Sustainability and provision of adequate ICT facilities in Nigerian schools to aid teaching and learning home economics be encouraged.
4. Further research to test the level of ICT usage by educational stakeholders during covid-19 pandemic is recommended.

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