

Status of Information Communication Technology (ICT) Use in Teaching among Home Economics Lecturers in Universities in Nigeria

Chiamaka Adaobi Chukwuone, Ifeoma Ngozi Dimelu and Equitosi Beatrice Oluah
Department of Home Economics and Hospitality Management Education,
University of Nigeria, Nsukka, Nigeria

Abstract: The study is an attempt to review the opinion of authors on the status of ICT use among Home Economics lecturers in universities in Nigeria. It focused on the need for ICT to be adopted in Home Economics methodology by Home Economics lecturers, the state of ICT use in Home Economics pedagogy and practice, aspects of Home Economics pedagogy that can employ ICT in its delivery, barriers to use of ICT in Home Economics methodology and recommendations towards increased ICT use among Home Economics lecturers in Nigeria.

Key words: Opinion, ICT, pedagogy, practice, methodology, Nigeria

INTRODUCTION

Information Communication Technology (ICT) is transforming lives of individuals, families and society at a tremendous rate. It has permeated nearly every human activity including education, civic involvement, leisure, employment, among others. It has rapidly changed the society, locally and globally. ICT is the procession of information through the convergence of technologies and when used in education it means employing ICT in teaching, learning and other academic activities including educational administrative purposes. ICT is rapidly changing the paradigm of education. This change is noticeable more in tertiary institutions. There has been observed increase in the quantity of ICTs provided in Nigerian Tertiary Education. ICT are finding their way into university education in Nigeria as in other countries of the world. Nigerian educational institutions are witnessing great access to ICT tools. Numerous ICTs are constantly being developed and used in education and these are rapidly influencing teaching and learning process (Agbatogun, 2013). The Federal Government of Nigeria (FGN) have also, made beautiful policies to develop and encourage the use of ICT in education in Nigeria. ICT in education exposes lecturers to enormous possibilities and opportunities in preparation, planning and implementation of educational instruction. Use of ICT for teaching and learning helps in making abstract concepts concrete (Olelewe and Nzeadibe, 2015).

Many Nigerian tertiary institutions are embracing ICT in their educational activities especially for administrative and non-academic purposes. Many institutions employ

ICT in course registration, student's admission, payment of fees and allocation of hostels, among other numerous non-academic and administrative activities. ICTs are fast making positive impacts in the way learning is delivered in higher institutions of learning (Oliver, 2005; Wabwoba *et al.*, 2011). The traditional method of teaching is gradually giving way to the use of ICT in teaching and learning. ICT makes for better and more interactions among the students, lecturers and learning experiences. It facilitates interaction among learners themselves and the learning process.

However, the growth, development and use of ICT in education in Nigerian tertiary institutions has not moved much beyond administrative and non-academic purposes in these institutions, especially, among lecturers (Offorma, 2015). Home Economics lecturers as some Nigerian lecturers still do not employ ICT in carrying out their teaching activities. Despite the benefits as a result of use of ICT in facilitating instruction and consequently improved learning outcomes it is still not fully adopted by many Home Economics lecturers in Nigeria (Uzoka and Okafor, 2018). The attitude of Home Economics lecturers towards use of ICT has not been encouraging their pedagogical thinking has not advanced in parallel with technological advances in education.

The study then aims to develop a conceptual perspective on the status of ICT use among University Home Economics lecturers in Nigeria. It is therefore, organized along the following themes; the need for ICT to be adopted in Home Economics methodology by Home Economics lecturers, the state of ICT use in Home Economics pedagogy and practice, aspects of Home

Economics pedagogy that can employ ICT in its delivery, barriers to use of ICT in Home Economics methodology and recommendations towards increased ICT use among Home Economic lecturers in Nigeria.

MATERIALS AND METHODS

The need for ICT to be adopted in Home Economics methodology by Home Economics lecturers: Home Economics as a vocational subject strives to equip individual and families with the right skill, knowledge and attitude for self-reliance and sustenance (Uzoka and Okafor, 2018). Home Economics is a broad discipline that impacts on individuals, families and communities towards bringing about positive change in their lives. In order, to achieve this optimal and sustained livelihood for individuals, Home Economics draws knowledge, ideas and skills from a wide range of disciplines. It synthesises knowledge from inter-disciplinary and trans-disciplinary areas of study.

Home Economics therefore call for sustenance in all areas of life and as such draw from all fields of study. There is virtually no field of study from which Home Economics does not draw knowledge from (Anyakoha, 2017). The capacity to draw from such disciplinary diversity is strength of the profession (Anonymous, 2008). Literature, however shows that historically, Home Economics has been in the context of the home and household before now. Training is mainly through observation and imitation of parents and adults by younger family members especially, children. Overtime, the program has extended and expanded its horizon to include wider living environments and has advanced extensively to address issues of global concerns. The program is currently being offered at all educational level in Nigeria, from primary to tertiary level. At the tertiary level it is offered in monothechnics, polytechnics, colleges of education and universities.

University level home economics program in Nigeria entail training and acquisition of competencies in different areas of life such as Clothing, Grooming, Childcare, Food and Nutrition, Home Management among others (Federal Republic of Nigeria). Home Economics programme at Universities in Nigeria is constantly being reviewed towards growth in new directions, solutions to new challenges and new skill sets. As Home Economics education strives to provide men with a better quality of life it is important that the professionals in it (lecturers) accept societal change effecting individuals and families. To achieve these require new knowledge, attitude and skills. This can only be effectively achieved with change in the methodology of Home Economics pedagogy. The

traditional teaching methods adopted should be revisited along the lines of technological changes of which ICT is one of them (Olelewe and Okwor, 2017). There is need for a fundamental transformation in the teaching and learning of the course in line with development in ICTs.

ICT in Home Economics pedagogy and practice: ICT as one of the instructional materials that have recently being used in the educational process especially at university level in Nigeria has even being introduced as programs of study in tertiary institutions in Nigeria. This is attributable to constant societal revolution being experienced in the availability of information technology. Knowledge economy has become one of the key issues in national development (Offorma, 2015). It is one of the major areas in the sustainability development goals Anonymous, (2013). Technological advancement has made it possible for information to be accessed from any part of the world, hence, making the world a global village (Uzoka and Okafor, 2018).

University education should therefore, promote the use of ICT, since, the education of a society reflects their goals, needs and aspirations and ICT has become one such national goal (Garcia-Valcarcel and Tejedor, 2009). Hence, many programs offered at the Nigerian universities are adopting ICT in delivery of instruction. ICT are becoming useful instructional materials as they make teaching interesting and easier. ICT allow teachers including lecturers to have more control of what students are learning (Garcia-Valcarcel and Tejedor, 2009). The use of ICT as an instructional material in Home Economics education will give learners and even lecturer's unlimited access to information. Use of ICT by Home Economics lecturers will definitely improve the teaching and learning process (Garcia-Valcarcel and Tejedor, 2009).

However, it is observed that many Home Economics lecturers at Nigerian Universities as other lecturers are yet to fully adopt ICT as an instructional tool (Agbatogun, 2013). In continuation, Alaba noted that Home Economics lecturers like most faculty members are not keen to embrace the use of these emerging technologies for teaching and learning. It is then imperative that Home Economics lecturer like every other lecturer adopt new pedagogical practices like use of ICT in order to facilitate higher level knowledge acquisition skills that the learners need for effective lifelong learning (Hawarainen *et al.*, 2001). Research has shown that students achieve more and attain their full potential better and faster with ICT being used as a mode of instruction (Cox and Abbott, 2004). Use of ICT in instruction facilitates active participation of students because university students are already using different ICTs for personal purposes its use

by the lecturers will also encourage and strengthen more cordial relationship between lecturers and students. This is because students are better disposed towards the use of ICTs to communicate with their lecturers. So, when ICT is integrated into the teaching and learning process it will make learning more interesting and interactive. Rogers and Finlayson (2009) supported this by stating that ICT made subjects more accessible, stimulates creative thinking and improve learning. Furthermore, Home Economics programs should be geared towards encouraging the use of modern teaching methods of which ICT is one of them. Apart from improving teaching, ICT enhances research activities within and outside the university community. As such it will make more information accessible to researchers and also link researcher caring out related research project globally. ICT if effectively integrated and adopted in teaching Home Economic programs in Nigerian Universities will go a long way in the achievement of the objectives of the program. Since, Home Economics is a unique course that impacts on lives of individuals, families and the society. Home Economics as a very dynamic area of study continues to change with and adapt to changing human needs (Anyakoha, 2017). And as such anything that impact on human lives should be an area of concern for Home Economics. ICT is a modern invention in information technology that has permeated every aspect of man's life and is fast affecting human activities in diverse forms. And as such should be addressed by Home Economics. Home Economics is an area that need to utilize ICT fully in it delivery system.

This is because Home Economics produce professionals and graduates who will practice and operate in the ICT era, eventually live and survive within the global village of ICT. It is therefore, imperative that they are exposed to ICT early in their lives and training through adequately employing ICT as instructional tools (Olelewe and Nwafor, 2017). The use of ICT in Home Economics program is very crucial especially in this era of knowledge economy. Home Economics programs constantly adapt to changing situation in lives of individuals. Home Economics is an area of study that is constantly, evolving ways of resolving numerous human and societal needs including, ICT. ICT is a modern invention that transcends every aspect of human life. ICT daily impact on individuals inform of e-Learning, e-Commerce, e-Banking, e-Marketing, social networking, among others. ICT impacts in both positive and negative ways too which directly and indirectly affect families (Anyakoha, 2017). Consequently these have implications on the profession.

Home Economics programs should therefore not be left out in this globalization and computer era, especially,

in its methodology (Uzoka and Okafor, 2018). Home Economics should adopt ICT in its practice and profession. And as such should be utilized in teaching Home Economics courses. Home Economic lecturers should adapt to societal changes as a result of ICTs. As ICT revolution poses a major challenge for the lecturer's continual professional development. Home Economic lecturers should employ ICT to interpret and implement the curriculum. They should adopt ICT to transform the laid down educational policies to practical outputs in the classroom. ICT if properly utilized can effectively bring out desired change in behaviour of the learners. The lecturer is therefore, the key to effective content delivery in the university. The successful integration of technology in education is effectively influenced by the lecturers perceptions (Cant and Bothma, 2010). Employing ICT in training and Research in Home Economics programs will provide opportunities to both lecturers and students to change their pedagogical thinking in line with advances in technology (Sipila, 2014). Furthermore, the use of ICTs in education adds value to teaching and learning (Kansanen *et al.*, 2000). Studies have shown that ICT when adequately employed in the instructional process will facilitate accessibility, quality and even collaboration across institutions and academics (Qudais *et al.*, 2010). This is very essential in Home Economics program, since, it deals with individuals and their welfare. Use of ICT can encourage the sharing of ideas Via. the internet on numerous human needs and peculiarities to each society. This can help individuals to exchange information and access to resources.

In order to facilitate and achieve the goal of learning with the use of ICTs, ICT-based educational tools should be fully merged with the social and educational practices of teachers and students (Hakkarainen, 2009). Again the Home Economics lecturers need to be knowledgeable in the use of ICTs in a pedagogically designed technique in teaching and learning (Sipila, 2014). Therefore, for ICTs to be effective in achieving educational objectives it must be used in a pedagogically meaningful ways. Such pedagogical ways ICTs could be employed in Home Economics program are many and diverse as the opportunities ICT hold for Home Economics programs, lecturers and students inclusive are enormous. ICT can then be utilized in Home Economics lesson preparation, planning, content selection, delivery of instruction, evaluation, presentation of result, placement of students and even follow-up of the graduates upon graduation, among others.

Aspects of Home Economics pedagogy that can employ ICT in its delivery: In the educational sector, ICT is

generally used as a means of communication to present information (Garcia-Valcarcel and Tejedor, 2009). Specifically, ICT can be used in almost all the activities involved in teaching and learning in Home Economics. It can be used as an important instructional tool in presentation of lectures. Lecture material can be prepared and presented to students using power point presentations as slides. Cameras, videos, voice recorders, internets can also be used to record and present information, ideas and images to students. For instance, a Home Economics lecturer can record a practical class and present it to students. Students can view video clips of a practical session in the content areas being taught and use them as guides to replicate such projects and assignments. Internet can also, serve as a learning resource especially, for direct interaction between the lecturers and students (Garcia-Valcarcel and Tejoder, 2009). A lecturer for example can send course contents, assignments and other academic instructions to students via. e-Mail. ICT can also be used in evaluation of instruction in Home Economics programmes. Publication of results and students placement can be done using ICTs. Students can conveniently, check their performance, result, source for ideas, course content and reading material online. Therefore, ICT has so many great opportunities if properly adopted and utilized. It is an instructional tool that has so many positive potentials in the academic sector. It will enhance Home Economics methodology in various ways. It will develop greatly the psychomotor, cognitive and affective domains of the learners. It has been observed to offer more to students when combined adequately with other methods of teaching (Olelewe and Nwafor, 2017). Adequate utilization of ICT in Home Economics methodology will foster teamwork, encourage self-discovery, creative thinking, independent study, evaluation of students competencies among others (Garcia-Valcarcel and Tejoder, 2009). Since, ICT has become an acceptable and more accessible method in the educational sector by Nigerian institutions (FRN). Efforts should be made by Home Economics lecturers to utilize it fully in their teaching. Again, it offers a more flexible and standard educational process, globally. ICT makes teaching and learning very flexible in the sense that educational process can be delivered anytime and anywhere (Qudais *et al.*, 2010).

Home Economics, therefore, cannot afford to be left out in this global e-Learning era-with all the great potentials and benefit it hold for the educational sector and national development.

However, despite these gains of adopting ICT in teaching and learning, it has unfortunately, not been utilized fully and adequately by Home Economics

lecturers (Sipilia, 2014). This can be attributed to numerous challenges affecting its adoption and use by Home Economics lecturers in Nigeria.

Barriers towards effective utilization of ICT among Home Economics lecturers in Nigeria: Adoption of ICT in teaching and learning of Home Economics programs like some programs offered in Nigerian universities hold enormous opportunities, nevertheless, its use is still facing numerous challenges (Olelewe and Nzeadibe, 2015). These challenges have continued to effect its effectiveness hence, have made it difficult for it to be fully and effectively utilized by Home Economics lecturers. The poor utilization of ICTs by Home Economics lecturers can be attributed to numerous factors. Some of these factors as Qudais *et al.* (2010) noted can be related to social issues, cultural issues, pedagogical issues, technological and infrastructural issues. Continuing Qudais *et al.* (2010) further noted that many of these challenges are more of social and cultural other than technological. There are other factors which are seen as human and these are attributed to the attitude of Home Economics lecturers, lecturers personality and reluctance to embrace change, inter alia.

Individuals including Home Economics lecturers have been known to, not always being keen to venture into an unknown or unfamiliar territory except when it has been well tested and tried out. Home Economics lecturers like every individual are scared of embracing new methods, ideas including the use of ICTs in teaching and learning (Liu and pange, 2015). Literature has it that technophobia is one major factor affecting the non-use of ICT among individuals (Selwyn, 2003). Social psychologists describe this fear of technology as psychological and its an innate characteristics with all humans to new ideas even when the intended technology seems harmless. Some Home Economics lecturers avoid the use of ICT in their teaching because of anxiety, apprehension and lack of confidence (Shashaani, 1993; Bingimlas, 2009).

Resistance to change and fear of technology are among the major factors that affect use of technology (Berge, 1998). The lectures are not trained with ICT and so are not conversant in its use as an instructional tool. Lecturers lack of skill and knowledge in the use of ICT pose a barrier to its utilization as an instructional material (Bingimlas, 2009). Lack of willingness to use ICT resource in teaching is another major issue and setback to its adoption in education (Hadley and Sheingold, 1993). Attitude of lecturers including Home Economics lecturers has also been shown to be a major factor in their willingness to use ICT in teaching (Reis, 2007). Lack of

skill in ICT is also another major hindrance to its use by Home Economics lecturers. Lecturers lack of skill and knowledge in the area of ICT can pose a serious barrier to its use by them (Bingimals, 2008). Lack of ICT skill is one of the frequently stated challenge to the use of ICT among lecturers (Yusuf, 2007; Ihmeideh, 2009; Olelewe and Nzeadibe, 2015). Previous computer experience can encourage or discourage the use of ICT by lecturers (Snoeyink and Entmer, 2001). Previous negative experience can dampen the interest, motivation and enthusiasm of the lecturers to adopt ICT in their teaching.

Lack of institutional support can lead to lack of motivation on the part of lecturers towards adopting ICT in education. It is also, among the most frequently cited challenge by lecturers including Home Economics lecturers to their non-adoption of ICT. (Qudais *et al.*, 2010). Support can come in provision of ICT tools, like adequate infrastructure, hardware and software, internet facilities among others. Lack of support is therefore a major issue in lecturers non-use of ICT (Olelewe and Nzeadibe, 2015). Time allotted to Home Economics in the timetable can also pose a challenge to the use of ICT (Uzoka and Okafor, 2018). At times, the time provided for lecture is not enough for effective adoption of ICT in education. Some ICT presentations consume longer duration more than the normal traditional lecture period. This makes it difficult to fully use it and derive maximum benefits due to the short duration of lecture period.

Again, Home Economics courses are skill oriented hence, entail a lot of practical sessions, However, some of these practical sessions need extra-time especially when using ICTs. This may not be easily available in the timetable consequently hindering its use. Excess workload can also be a barrier to the use of ICTs. Many lecturers in Nigeria have excess workload that makes the use of ICT seem impossible. It takes time to prepare lessons and present lecture properly with ICT, especially when the lecturer is overloaded and consequently over worked. The time needed to prepare for lectures with ICT is always a challenge especially when the lecturer has too many courses to prepare and teach (Schulter, 2000). Lack of ICT tools and facilities these include computer, internet, electricity inter-alia. Effective use of ICT in teaching and learning can only take place where the facilities that encourage the use of ICT are available and in the right condition. Constant power outage hinders the use of ICTs. Lack of internet and high cost of provision of internet discourages the use of ICT in

teaching. Hence, the need to identify measures that if adopted could enhance the effective utilization of ICT by Home Economics lecturers.

RESULTS AND DISCUSSION

Recommended measures that can encourage adoption of ICT by Home Economics lecturers: The importance of the use of ICT in education especially Home Economics programs can never be over emphasized. Especially when the major objective of the program is skill acquisition and production of skilled personnel that is self-reliant. Again, in this global era it is important that graduates of Home Economics be adequately equipped to compete favourably with their counterparts both within and outside Nigeria. This can only be achievable when they are conversant with global practices especially ICT and its use in everyday life and especially in education. However, numerous factors threaten the effective utilization of ICT in teaching and learning of Home Economics programs. Such factors if taken care of can go to an extent in encouraging and sustaining the use of ICT in Home Economics education in Nigeria.

There is need for proper and sustained institutional support. This support can come in form of incentives to lecturers that use ICT in their lecture delivery, provision of efficient ICT tools and having an environment that encourages the use of ICT. The institutions should also provide facilities like steady electricity supply internet facilities among others to motivate lecturers to use ICT. Faculty members should be trained or given opportunities to train themselves in ICT and related concepts (Reis, 2007). Olelewe and Okwor (2017) and Qudais *et al.* (2010) stated that for a lecturer to adopt ICT confidently it is important that they master the skills in technology. University management should initiate regular capacity building programs in ICT and related areas (Olelewe and Okwor, 2017). With constant training and re-training on ICT lecturer's skill will be enhanced and consequently their confidence in the use of ICT in teaching and learning boosted (Olelewe, 2015). This will contribute immensely in changing the negative attitude and fear toward the use of ICT.

There is also need to effectively implement government policy on ICT with a view towards emphasizing its proper adoption and use in universities in Nigeria. Effort should also be made by the lecturers to update themselves and go for in-service trainings, retraining, workshops and conferences to keep abreast with recent happenings technologically in

education. To encourage this recruitment and promotions should be based on ICT knowledge skill and use at least to an extent. Since, ICT is an essential teaching tool and if properly utilized will enhance learning outcome greatly.

CONCLUSION

Home Economics is an area of study that is constantly changing and adapting to the speed of change. It cannot be left-out with recent societal development of which use of ICTs in education is one of such recent innovations. ICT in education has come to be one of the widely accepted instructional tool. It has shifted the paradigm from teacher centred to learner-centred approach to lifelong learning. The use of ICTs is increasing in Nigerian educational sector and hence the need to encourage Home Economics lecturers to use it in their teaching. Literature has therefore shown quite a number of studies of ICTs in education. However, none of these studies focused on the status of ICT use among Home Economics lecturers in Nigeria, this is a gap in literature which this review has sought to fill.

REFERENCES

- Agbatogun, A.O., 2013. Interactive digital technologie's use in Southwest Nigerian universities. *Educ. Technol. Res. Dev.*, 61: 333-357.
- Anonymous, 2008. International federation of home economics. IFHE Position Statement Office, USA.
- Anonymous, 2013. National policy on education. Federal Government Printing Press, Lagos, Nigeria.
- Anyakoha, E.U., 2017. Reinforcing borderlessness in home economics: Multiplying literacies and enhancing retooling strategies for improving Socio-economic conditions of families. *Proceedings of the 8th International Conference on Federation of Home Economics (IFHE) African Region, October 24-28, 2017, University of Uyo, Uyo, Nigeria*, pp: 8-15.
- Berge, Z.L., 1998. Barriers to online teaching in Post-secondary institutions: Can policy changes fix it. *Online J. Distance Learn. Administration*, 1: 1-13.
- Bingimlas, K.A., 2009. Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. *Eurasia J. Math. Sci. Technol. Educ.*, 5: 235-245.
- Cant, M.C. and C.H. Bothma, 2010. The Learning-technology conundrum: Lecturer's perspectives. *Progressio*, 32: 55-73.
- Cox, M. and C. Abbott, 2004. ICT and attainment-A review of the research literature. British Educational Communications and Technology Agency. Department for Education and Skills, London, UK.
- Garcia-Valcarcel, A. and F.J. Tejedor, 2009. Training demands of the lecturers related to the use of ICT. *Procedia Soc. Behav. Sci.*, 1: 178-183.
- Hadley, M. and K. Sheingold, 1993. Commonalities and distinctive patterns in teachers' integration of computers. *Am. J. Educ.*, 101: 261-315.
- Hakkarainen, K., 2009. A Knowledge-practice perspective on Technology-mediated learning. *Intl. J. Comput. Supported Collaborative Learn.*, 4: 213-231.
- Hakkarainen, K., H. Muukonen, L. Lipponen, L. Ilomaki and M. Rahikainen *et al.*, 2001. Teachers' Information and Communication Technology (ICT) skills and practices of using ICT. *J. Technol. Teach. Educ.*, 9: 181-197.
- Ihmeideh, F.M., 2009. Barriers to the use of technology in Jordanian Pre-school settings. *Technol. Pedagogy Educ.*, 18: 325-341.
- Kansanen, P., K. Tirri, M. Merri, L. Krokforsn and J. Husuet *al.*, 2001. *Teachers Pedagogical Thinking, Theoretical Landscapes, Practical Challenges*. Peter Lang Publishing, New York, USA.,.
- Liu, X. and J. Pange, 2015. Early childhood teachers' perceived barriers to ICT integration in teaching: A survey study in Mainland China. *J. Comput. Educ.*, 2: 61-75.
- Offorma, G.C., 2015. Promoting Access to Internet Facilities in Tertiary Institutions. In: *Dynamics of Access to Education in Nigeria*, Unachukwu, G.C. (Ed.). Socoa Heritage Limited, Awka, Nigeria, pp: 212-226.
- Olelewe, C.J. and A.N. Okwor, 2017. Lecturer's perception of interactive whiteboard for instructional delivery in tertiary institutions in Enugu State, Nigeria. *J. Comput. Educ.*, 4: 171-196.
- Olelewe, C.J. and C.A. Nzeadibe, 2015. Challenges Facing the Availability and Utilization of ICT Resources in Post Primary Schools in Nsukka Educational Zone of Enugu State, Nigeria. *Information Communication Technology (ICT) Integration to Educational Curricula: A New Direction for Africa*, Nwaokaeafor, C.U. (Ed.). University Press of America, Lanham, Maryland, USA., ISBN:9780761865377,-pp: 1-82.

- Olelewe, C.J. and I.P. Nwafor, 2017. Level of Computer Appreciation Skills Acquired for Sustainable Development by Secondary School Students in Nsukka LGA of Enugu State, Nigeria. In: Sustainable ICT Adoption and Integration for Socio-Economic Development, Ayo, C.K. and V. Mbarika (Eds.). IGI Global, Pennsylvania, USA., pp: 214-233.
- Oliver, B., 2005. Australian university students' use of and attitudes towards mobile learning technologies. Proceedings of the IADIS International Conference on Mobile Learning, June 28-30, 2005, IADIS Publisher, Qawra, Malta, pp: 24-32.
- Qudais, M.A., M. Al-Adhaileh and A. Al-Omari, 2010. Senior faculty member's attitudes in Jordanian Universities towards using information and communication technology. *Int. Arab J. E. Technol.*, 1: 135-141.
- Reis, R., 2007. Understanding senior faculty needs. Stanford University, Stanford, California, USA. <https://tomprof.stanford.edu/posting/793>.
- Rogers, L. and H. Finlayson, 2004. Developing successful pedagogy with information and communications technology: How are science teachers meeting the challenge?. *Technol. Pedagogy Educ.*, 13: 287-305.
- Schuifter, C.C., 2000. Faculty participation in asynchronous learning networks: A case study of motivating and inhibiting factors. *J. Asynchronous Learn. Networks*, 4: 15-22.
- Selwyn, N., 2003. Apart from technology: Understanding people's non-use of information and communication technologies in everyday life. *Technol. Soc.*, 25: 99-116.
- Shashaani, L., 1993. Gender-based differences in attitudes toward computers. *Comput. Educ.*, 20: 169-181.
- Sipila, K., 2010. The impact of laptop provision on teacher attitudes towards ICT. *Technol. Pedagogy Educ.*, 19: 3-16.
- Snoeyink, R. and P.A. Ertmer, 2001. Thrust into technology: How veteran teachers respond. *J. Educ. Technol. Syst.*, 30: 85-111.
- Uzoka, A.F. and O.P. Okafor, 2018. Application of Information and Communication Technology (ICT) in home economics education in Nigeria: Issues and challenges. *Intl. J. Res. Dev.*, 1: 1-12.
- Wabwoba, F., K.K. Omieno, C.N. Simiyu and Z.W. Sisungu, 2011. The role of wireless technologies in taking education to rural villages in developing countries. *Intl. J. Inf. Commun. Technol.*, 1: 300-305.
- Yusuf, M.O., 2007. Trends and barriers on the integration of information and communication technology in the Nigerian School System. Department of Curriculum Studies and Instructional Technology, Olabisi Onabanjo University, Ago Iwoye, Nigeria.