

ASSESSMENT OF EXPERIENCE AND GENDER IMPLICATION ON TEACHERS' ACQUISITION OF ICT SKILLS FOR EFFECTIVE IMPLEMENTATION OF CHILDHOOD EDUCATION CURRICULAR

FELICITAS ONYEMAZUWA IWUAGWU (PhD)

Department of Educational Foundations

University of Abuja, Nigeria

Email: meetfelicitas@gmail.com ; +2348034385716

For Correspondence use: chigods2013@gmail.com ; +2347038878520

Abstract

There is a paradigm shift in the conventional approach to issues in all facets of endeavour as result of the emergent of Information communication and technology. Functional and effective education may be grossly impossible in the 21st century without the use of ICT. Childhood education teachers are saddled with the responsibility of implementing the childhood curricular meant to prepare pupils and students of childhood age for subsequent levels of education. For this level of education to be at par with the contemporary global approach, it demands adequate possession of ICT skills.. In view of this background, the study aimed at ascertaining the impact of experience and gender on the extent to which childhood education teachers possess ICT skills, with emphasis to ICT skills that promote effective childhood curricular implementation. The study adopted ex post facto designs. Five research questions and two hypotheses guided the study. A sample size of 2130 childhood education teachers (pre-basic, lower basic and upper basic) education teachers drawn from 213 childhood education schools in Federal Capital Territory (FCT), Abuja were used for the study. Mean and standard deviation was used to answer the research questions while t-test was employed to test the hypotheses. The result of the study showed that the extent to which childhood education teachers possess ICT skills for effective implementation of childhood education curricular waste a great extent; gender and experience were significant factors on the extent childhood education teachers' possess ICT skills. The study therefore recommended among others compulsory ICT training and retraining for high experience and female childhood education teachers in FCT, Abuja.

Keywords: Assessment, Gender Implication, Teachers, ICT Skills, Childhood Education.

Introduction

The emergence of Information and communication Technology (ICT) and globalization in the 21st century, exacted a paradigm shift in the conventional approach to issues in all areas of endeavour. Information and Communication Technology (ICT) are radically transforming the way we live. ICT is pervasive in our work, study and personal lives (Las Johansen et al, 2017). ICT is the acronym for Information and Communication Technology (ICT). ICT includes computers, the Internet, and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in today's education field (Jo Shan, 2013). The authors above also observed that today's learners are growing up in a world characterized by technological change and innovation; and that educators have recognized that there is a need to equip learners with the necessary skills and experiences that will enable them to become contributing members of the global community.

It is therefore generally believed that ICTs can empower teachers and learners, promote change and foster the development of the 21st century skills, but data to support these beliefs are still limited. According to Kuyoro, Awodele, & Okolie (2012), ICT is believed to be able to contribute to the enhancement of learning in the world since these tools can play a role in reforming education systems, increasing access to pedagogical resources, improving the management of education and enhancing pedagogical techniques. However, speculation has it that introducing different ICTs in the classroom and other educational settings all over the world over the past several decades suggests that the full realization of the potential educational benefits of ICTs is not automatic. The effective integration of ICTs into the educational system seems complex, multifaceted process that involves not just technology but curriculum and pedagogy, institutional readiness, teachers' acquisition of ICT skills, and long-term financing, among others (Tinio, 2003).

ICT has the power to increase motivation and learner engagement and helps to develop life-long learning skills. As a powerful educational tool, ICT can facilitate the transformation of school education. But to make this happen it is vital to bring about the changes to the mind set and culture among teachers, administrators, parents and students; the way in which the curriculum is designed and delivered and how students are currently assessed. Thus, harnessing ICT continues to be an important challenge to educators. Nigeria government has shown serious commitment to ICT in education by announcing a series of initiatives to apply ICT in teaching and learning in line with the Millennium Development Goals and the Education For all movements. They have provided a global policy environment for the directions and nature of interventions towards the achievement of improved access to and quality of education. Other key policy documents have identified the need for ICT reform within the education sector and these have resulted in more prioritizing from regions, schools and teachers regarding the incorporation of ICT into the education system, San Diego, Cecilia. (2012).

Education is the priority sector for every well-meaning society. It is a process by which individuals acquire knowledge, skills and attitudes, which enable them to develop their faculties in full. Quality education enables individuals to contribute to the development in the quality of their lives, community and the nation as a whole. This may be why in Nigeria, education is regarded as an instrument "per excellence" for affecting national development (Federal Republic of Nigeria (FRN), 2013). Besides, FRN noted that education has remained an instrument of change and national development. Education is therefore a social process and medium for the acquisition of relevant knowledge, skills and attitudes for survival in a challenging and changing world.

Nigerian educational system comprise childhood education (pre- basic, lower basic and upper basic), senior secondary and tertiary education. Childhood education according to Nzeribe (2004), is an important sub- sector of the entire education system being the foundation on which other levels of education are built. Its settings and nomenclature varies from one country to another. It is the education designed for children within the ages of 0- 12 years old (Nzeribe). It is pre-dominantly with pupils of pre- basic, lower basic and upper basic school age, the most crucial stage in the personality of the child. Education attainment at this stage is very crucial to the nation since their curricular is geared towards equipping the child with the requisite survival skills to face the challenges of the environment; and relevant skills for

further education, good citizens and to contribute effectively to the society, its governance and other wise. Effective implementation of these curricular at the stages of education is very important to the nation and the entire education system hence a faulty educational foundation will unequivocally lead to total collapse of education system of the given nation.

However, the effectiveness of childhood education is not only dependent on the school environments, educational policies, and teachers' pedagogical skills but also on their ability to teachers to embrace modernization, self-development, and innovations and to be a braced with the world class knowledge and global methods of teaching which can only be possible through acquisition of Information and communication Technology (ICT) skills. The emergent of ICT integrated the world into a global village and put into eviction conventional method of doing things in all facet life. According to Demetriadis, et al. (2003), teachers' attitudes towards the innovation of ICT in the curriculum seems unhealthy, breeding efforts are mostly received by teachers, but consistent support and extensive training are necessary in order to consider themselves able for integrating ICT in their teaching methodologies. Teachers are interested in using ICT (a) to attain a better professional profile, and (b) to take vantage of any possible learning benefits offered by ICT but always inside the setting of the school culture. However, Jones (2004) reported that there are clear evidence that ICT in teaching and learning has not transformed educational delivery in education implying that teachers have not shifted from instructor- centred teaching to learner-centred learning. The reasons for the low utilization of these hardware and software could be ascribed to lack of access to technological resources in the classroom and lack of teachers' training skills and experience in the use of the ICT.

Irfan and Mohamad (2014) referred to teachers' experience as various years of input of a teacher in teaching profession. It comprises low experience (0 to 5 years) and high experience (6 years and above) of full-time active teaching. Irfan and Mohamad observed that experience is a strong factor that influences teachers' acquisition of ICT skills.

Besides, there are still several differences between male and female gender regarding ICT. The culture of ICT among males seems to involve features of an adaptive expert culture (Alexander, 2004; Facer, Sutherland, Furlong, & Furlong, 2001). Mieg (2001) reported that male gender possesses positive attitude towards learning of ICT than their female counterparts as male take up challenges in learning how to use ICT than female. In line with the submission of the authors above, Hakkarainen et al. (2001); Ilomäki and Rantanen (2007) affirms that male teachers possess more ICT skills than the female teacher.

ICT skills in the context of this study refers to the acquired knowledge, skills or abilities to effectively take advantage of ICT to achieve a pre-determined goal or target. ICT skills is acquired through training. It include the ability to manipulate the ICT gargets for effective implementation of the childhood education curricular. The use, of ICT skills for effective implementation of curriculum varies from one teacher to another. Evidence abound that some teachers comply with the use of ICT in curriculum implementation in FCT while others do not irrespective of government efforts in providing the facilities and training needed for proper integration of ICT in the implementation of childhood education curricular. Besides, Observation has shown that till date the integration of ICT in teaching and learning has not yielded the expected result. The researcher is of the opinion that this may be as a result of

many factors such as Intelligent Quotient (IQ), gender and working experience of the teachers among other things. In view of this background, this study wish to determine the extent childhood education teachers possess ICT skills and the extent gender and experience influence teachers' acquisition of ICT skills for effective implementation of childhood education (pre- basic, lower basic and upper basic)curricular in FCT.

Purpose of the study

The purpose of the study was to determine the level of ICT skills possessed by childhood education teachers. Specifically the study intends to:

- Determine the extent to which childhood education teachers in FCT possess ICT skills for effective implementation of childhood education curricular.
- Ascertain the impact of gender on the teachers' acquisition of ICT skills for effective implementation of childhood education curricular.
- Ascertain the influence of experience on the teachers' acquisition of ICT skills for effective implementation of childhood education curricular.

Research Questions

1. What is the extent to which childhood education teachers in FCT, Abuja possess ICT skills for effective implementation of childhood education curricular?
2. What is the extent to which male childhood education teachers in FCT, Abuja possess ICT skills for effective implementation of childhood education curricular?
3. What is the extent to which female childhood education teachers in FCT, Abuja possess ICT skills for effective implementation of childhood education curricular?
4. What is the extent to which high experienced childhood education teachers in FCT, Abuja possess ICT skills for effective implementation of childhood education curricular?
5. What is the extent to which low experienced childhood education teachers in FCT, Abuja possess ICT skills for effective implementation of childhood education curricular?

Hypotheses

1. **H₀₁:** There is no statistically significant ($p < 0.05$) difference in the mean extent to which male and female childhood education teachers possess ICT skills for effective implementation of childhood education curricular in FCT as measured by Teachers' ICT Compliance Self- rating Scale (TICTCSRS).
2. **H₀₂:** Experience is not statistically significance ($p < 0.05$) factor in the mean rating score of ICT skills for effective implementation of childhood education curricular between teachers with low experience (0 to 5 year) and high experience (6 years and above) as measured by (TICTCSRS)

Method

Design:

The study employed the ex post facto (i.e. Casual - comparative) design. The design was used to determine the extent to which childhood education teachers' possess ICT skills that promote effective implementation of childhood education curricular and influences of gender and experience on the childhood education teachers' acquisition of ICT skills for effective curricular implementation.

Sample:

The sample size of the study comprised 2130 childhood education teachers drawn from 213 public and private childhood (pre- primary, lower basic and upper basic) schools in Federal Capital Territory (FCT) Abuja, using dual-stage sampling techniques. In the first stage, the researcher employed non proportionate stratified random sampling techniques to draw 71 (40 public, 31 private) pre-basic; 71 (40 public, 31 private) lower basic; and 71 (40 public, 31 private) upper basic; childhood schools in each of the six Area councils which amounted to 213 public childhood schools in FCT, Abuja.

At the second stage, the researcher used non proportionate random sampling technique to draw 10 childhood school teachers from each of the sampled 213 public and private childhood schools sampled from the six Area Councils of FCT which amounted to the sample size 2130 public and private childhood schools teachers used for the study.

Instrument

The instrument used for data collection was a Teachers' ICT Compliance Self -rating Scale (TICTCSRS) developed by the researcher. The instrument is made up of part A and part B, part A sought for demographic information of childhood school teachers, while part B consists of 20 items structured into a four point rating scale ranging from VGE- Very High Extent = 4 points, MOD- Moderate Extent = 3 points, LE-Low Extent = 2 points to VLE-Very Low Extent = 1 point. TICTCSRS was validated by two computer science education specialist and two measurement and evaluation experts all from faculty of education university of Nigeria. Estimate of internal consistency of the instrument was 0.85 determined using Cronbach Alpha statistical method. The choice of Cronbach Alpha was because the items of the instrument (TICTCSRS) were polytomously scored. Data were collected with the help of 30 research assistant (post graduate students of university of Abuja) and the researcher who were trained for a day on the effective means face to face administration of with the respondents and retrieved of instruments immediately after completion. The collection of data for the study lasted for a period of one month.

Method of Data Analysis

The data collected were analysed using mean and standard deviation, and t- test. Mean and standard deviation was used to answer the research questions, t-test was used to test the hypotheses. To answer the research questions, the result was interpreted using the limit of real numbers where a mean score of 1.00 - 1.49 was regarded as Very Low Extent; 1.50 – 2.49 was regarded as Low extent; 2.50 – 3.49 was regarded as Great extent while 3.50 – 4.00 was regarded as Very Great Extent. In testing the null hypotheses, the following decision rules were used: (i) When the associated probability value obtained is less than 0.05 (that is, $p < 0.05$) the null hypothesis was rejected and (ii) When the associated probability value obtained is greater than 0.05 (that is, $p > 0.05$) the null hypothesis was not rejected.

Results

Table 1- childhood education teachers' extent of acquisition of ICT Skills by gender and experience

		EXPERIENCE						OVERALL		
		High N = 1090			Low N = 1040			N= 2130		
		$\bar{X}$	SD	DEC	$\bar{X}$	SD	DEC	$\bar{X}$	SD	DEC
G E N D E R	Male N = 1033	2.35	0.34	LE	2.82	0.33	GE	2.59	0.34	GE
	Female N = 1097	2.24	0.33	LE	2.63	0.36	GE	2.44	0.48	LE
	Overall N= 2130	2.29	0.34	LE	2.73	0.35	GE	2.52	0.41	GE

Key: N = Number of respondent; GE = Great Extent; LE = Low Extent; DEC = Decision

The result of the study as presented in table 1 was used to answer the five research questions that guided the study. The result showed the mean ratings and standard deviations of childhood education teachers' acquisition of ICT skills for effective implementation of childhood education curricular, the extent to which male, female; high experience and low experience childhood education teachers possess ICT skills. The result showed that the overall mean rating of the extent childhood education teachers possess ICT skills for effective implementation of childhood education curricular in FCT was 2.52 with standard deviation of 0.41. Male teachers had mean rating possession of 2.59 with standard deviation of 0.34; female 2.44 with standard deviation of 0.48; high experienced teachers have mean rating of 2.29 with standard deviation of 0.34; while low experienced teachers has mean rating of 2.73 with standard deviation of 0.35 respectively. The result of the study showed that the extent to which male, female and low experienced childhood education teachers possess ICT skills for effective implementation of childhood education curricular were to a low extent, hence their mean possession of ICT skills fall within the range of 2.50-3.49 set as criterion for great extent. While high experienced childhood education teachers possess ICT skills for effective implementation of childhood education curriculum to a low extent, hence the mean falls within the range of 1.50-2.49 set as criterion for low extent.

Table 2: t-test Analysis of the Significant Difference on the mean extent to which Male and Female Childhood Education Teachers Possess ICT Skills for effective implementation of childhood education curricular.

Gender	N	Mean	SD	Df	t- cal	Sign	Dec
Male	1033	2.59	0.33	2128	0.15	0.00	Significant (reject H ₀)
Female	1097	2.44	0.35	2128			

The findings of the study as presented in table 2 showed the t-test analysis that: There is no statistically significant ($p < 0.05$) difference in the mean extent to which male and female

childhood education teachers possess ICT skills for effective implementation of childhood education curricular in FCT as measured by Teachers' ICT Compliance Self- rating Scale (TICTCSRS).

The Result showed that a t-value of 0.15 with a degree of freedom of 2128 and a significant value of 0.00 were obtained. Since the significant value of 0.00 is lower than 0.05 set as level of significance, this means that there is significant difference in the mean rating scores of the extent male and female childhood education teachers possessed ICT skills for effective implementation of childhood education curricular in FCT as measured by Teachers' ICT Compliance Self- rating Scale (TICTCSRS) in favour of the male childhood education teachers. Since the significant value of 0.00 is less than 0.05 set as level of significance, it means that the null hypothesis which stated that there is no significant difference on the mean extent to which male and female childhood education teachers possess ICT skills for effective implementation childhood education curricular in FCT is rejected.

Table 3: t-test Analysis of the Significant Difference on the extent to which High Experienced (6years and above) and Low Experienced (0- 5years) childhood Education Teachers Possess ICT Skills for effective implementation of childhood education curricular.

Experience	N	Mean	SD	Df	t- cal	Sign	Dec
High Experienced	1090	2.29	0.35	2128	9.28	0.00	Significant (reject H ₀)
Low Experienced	1040	2.73	0.34	2128			

The finding of the study as presented in table 3 showed the t-test analysis of the significant difference on the mean rating of the extent to which high experience and low experienced childhood education teachers possess ICT skills for effective implementation childhood education curricular. Result showed that a t-value of 9.28 with a degree of freedom of 2128 and a significant value of 0.00 were obtained. Since the significant value of 0.00 is less than 0.05 set as level of significance, this means the null hypothesis which stated that there is no significant difference on the mean extent to which high experience and low experienced childhood education teachers possess ICT skills for effective implementation childhood education curriculum is rejected. Therefore inference drawn is that there was a significant difference on the extent to which high experience and low experienced childhood education teachers possess – ICT for effective implementation of childhood education curriculum.

Discussion

The findings of the study have shown that childhood education teachers possess ICT skills for effective implementation childhood education curricular to a great extent. However, there is urgent need for development of female childhood education (pre- basic, lower basic and upper basic) teachers' ICT skills, since the findings of the study attested that the level at which the female childhood education teachers possess ICT skills for effective implementation of childhood education (pre- basic, lower basic and upper basic) curricular is low irrespective of the integration of ICT in the teacher education curriculum in Nigeria. ICT skills is a veritable tool for effective teaching and learning in the contemporary globalized community of the 21st century at the all level of education. It is much more important for teachers' effectiveness and

functional education than the conventional skills for curriculum implementation at childhood levels of education which teachers tend to concentrate and emphasized. The findings of the study is in line with the observation of Jones (2013), reported that there are clear evidence that ICT in teaching and learning has not transformed educational delivery in secondary education implying that teachers have not completely shifted from conventional method of teaching and learning to ICT based teaching and learning given that teachers lack some requisite skills in the use of ICT equipment.

Given other observations from the study, male teachers' possession of ICT skills than their female counterparts, and the difference is statistically significant. The findings of this study is in line with the report of Alexander(2004); Facer, et al. (2001), that male exhibit more ICT adaptive culture and Mieg (2001), that reported that male gender possesses positive attitude towards learning of ICT than their female counterparts as male take up challenges in learning how to use ICT than female. Hence the current study has shown that female childhood education teachers possess ICT skills to a low extent while their male counterparts possess ICT skills to a great extent which supports the findings of Hakkarainen et al.(2001); Ilomäki and Rantanen (2007), that male teachers possess more ICT skills than the female teacher. This buttresses the fact that gender is a significant factor on the extent childhood education teachers possess of ICT skills for effective implementation childhood education curricular.

Furthermore, experience turned out to be a significant factor on teachers' acquisition of ICT skills. Teachers with low experience showed greater possession of ICT skills than their high experienced counterparts. Thus, findings of Irfan and Mohamad (2014) is in line with the findings of this study which revealed that experience is a significant factor in the teachers' acquisition of ICT skills. However, the findings of the authors indicated that teachers with low experience (years of teaching) possess more ICT skills than their counterparts who have more years of experience. This may be as a result of frequent innovations in the field of ICT when there is no arrangement for in-service training and retraining of childhood education teacher on recent innovations in ICT.

Conclusion and Recommendations

Generally, the study revealed that the extent to which childhood education teachers possess ICT skills to great extent. The extent to which male and female childhood education teachers possess ICT skills differs significantly in favour of male childhood education teachers. Secondly, experience is a significant factor on the extent childhood education teachers possess ICT skills in favour of low experienced childhood education teachers consistently across the two levels of gender. These results suggest an urgent need for stake holders in education to be more pro-active in updating ICT skills of the childhood education teachers through planed periodic retraining. Such should emphasize on recent innovations on ICT. In this respect it is recommended that:

- Childhood education teachers should be given the opportunity for yearly update of their ICT skills for effective implementation of curricular through well planned and co-ordinated workshops to train and retrain.
- ICT skills capacity building programme should be organized for high experienced childhood education teachers mostly the teachers who have taught for 10 years and

above to improve their ICT skills with more emphasis on how it can be used for effective curriculum implementation;

- There should be compulsory ICT training for female childhood education teachers in FCT to improve their ICT skills.

References

- Abdul, Q.M., Muhammad, A. & Faiza, B. (2004). *Inequality, poverty and development*. UK: Macmillan Press.
- Alexander, P. A. (2004). A model of domain learning: Reinterpreting expertise as a multidimensional, multistage process. In D. Y. Dai & R. J. Sternberg (Eds.), *Motivation, Emotion and Cognition*. Lawrence Erlbaum Associates.
- Demetriadis, S., Barbas, A., Molohides, A., Palaigeorgiou, G., Psillos, D., Vlahavas, I. & Pombortsis, A. (2003). —Cultures in negotiation: teachers' acceptance/resistance attitudes considering the infusion of technology into schools. *Computers & Education*, 41(1), 19-37.
- Facer, K., Sutherland, R., Furlong, R., & Furlong, J. (2001). What's the point of using computers? The development of computer expertise in the home. *New media & society*, 3, 199–219.
- Federal Ministry of Education (2013). *The National Policy on Education*. Abuja: Nigeria Educational Research Council.
- Hakkarainen, K., Muukkonen, H., Lipponen, L., Ilomäki, L., Rahikainen, M., & Lehtinen, E. (2001). Teachers' Information and Communication Technology (ICT) Skills and Practices of Using ICT and Their Pedagogical Thinking. *Journal of Technology and Teacher Education*, 9, 181–197.
- Ilomäki, L., & Rantanen, P. (2007). Intensive use of information and communication technology (ICT) in lower secondary school: Development of student expertise. *Computers & Education*, 48, 119–136.
- Irfan, N. U. & Mohamad, T. M. Y. (2014). A study on Malaysian teachers' level of ICT skills and practices, and its impact on teaching and learning. *Procedia - Social and Behavioral Sciences* 116 (2014) 979 – 984.
- Jo Shan, F. (2013). ICT in Education: A Critical Literature Review and Its Implications. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 9 (1); 112-125.
- Jones, A. (2004). A review of the research literature on barriers to the uptake of ICT by teachers. Kuyoro Shade, O., Awodele, O., & Okolie Samuel, O. (2012). ICT: An Effective Tool in Human Development. *International Journal of Humanities and Social Science*, 2(7), 157-162.
- Las Johansen, B. C., Rommel, L. V., Devine, G. D. Function, L. A., Quisumbing, M. A., Gotardo, M. L., Laurente, J. C. & Cinco, V. M. (2017). An Assessment of ICT Competencies of Public School Teachers: Basis for Community Extension Program. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS) Volume 22,(3);1-13*.
- Mieg, H. A. (2001). *The social psychology of expertise: case studies in research, professional domains, and expert roles*. Mahwah, NJ: Erlbaum.
- Nzeribe, B.C. A. (2004). *Introduction of childhood education: Yola Nigeria: Pleasant Places Publishing* (AM publishing House).
- San Diego, Cecilia. (2012 December 10). *ICT in Education*. Retrieved from <http://www.deped-ne.net/?page=news&action=details&code01=AI12100001>
- Tinio, V. L. (2003). *ICT in Education*.