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CAREGIVERS' PERCEPTION ON THE APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY AND TEACHING EFFECTIVENESS IN PUBLIC EARLY CHILDHOOD EDUCATION CENTRES IN RIVERS EAST SENATORIAL DISTRICT OF RIVERS STATE

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ABSTRACT

The study examined caregivers' perception on the application of Information and Communication Technology (ICT) and its impact on teaching effectiveness in public early childhood education centres in Rivers East Senatorial District of Rivers State. The descriptive survey research design was adopted for the study. The study was guided by two research questions and two null hypotheses. The study's population comprised 2,415 caregivers with a sample size of 482 caregivers that were selected using stratified and simple random sampling technique. The instrument for data collection was the researcher self-designed questionnaire which was validated. The reliability coefficient obtained from the questionnaire was 0.68. Data was analyzed using independent t-test. The findings indicated that a significant difference in the perception of male and female caregivers regarding the application of computer and the teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District. The perception of male and female caregivers also significantly differed concerning the application of the internet and teaching effectiveness in the centers. Based on the study's findings, recommendation were made, which include the need for the government to provide information communication technology (ICT) gadgets in all public early childhood education centres in the state and also ensure their effective utilization.

Keywords: Caregivers, Teaching Effectiveness, Information and Communication Technology, Early Childhood Education.

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INTRODUCTION

Education plays an invaluable role in human development. Providing quality education leads to the development of competent human resources, which is essential for achieving national goals. The desire for effective teaching and learning has become a driving force in the 21st century. Caregivers are critical in influencing teaching and learning processes in the early childhood education centres.

Caregivers help to transform the socioeconomic conditions of society by educating children and equipping them with the skills, knowledge and habits necessary for survival in an ever-changing world (Amuche & Kukwi, 2013). Just as machinery and other production forces are essential in manufacturing, caregivers are curtail in producing positive learning outcomes for children. Caregivers influence not only the cognitive performance of children but also their social and emotional development, behaviours, knowledge and critical thinking (Blazar & Kraft, 2017). Therefore, effective performance of caregivers is paramount for any society.

When considering caregiver effectiveness, it is important to note that effective caregivers are clear about their instructional goals, knowledgeable about the content, communicate well, monitor preschoolers' understanding, and thoughtful and respectful about their teaching practices. Effective caregivers have knowledge, prepare and manage instruction, promote learning and help the children learn independently. Fuhrman, Fuhrman and DeLay (2010) observed that effective caregivers exhibit passion for their classroom interactions, are knowledgeable about and care for the children, use a variety of teaching strategies and help preschoolers appreciate the relevance of information to their own context. Sprinkle (2009) considered effective caregivers as those who employ a variety of teaching styles and make real world applications, including the use of information and communication technology (ICT).

Today's caregivers need to be competent to meet the requirements of changing classroom practices. As agents of change, caregivers can promote quality education and improve preschoolers engagement and learning in preschool centres. Equipping caregivers with necessary teaching competencies will contribute to effective implementation of education reforms. Obanya (2010) posited that caregivers remain essential actors and catalyst for change in all efforts aimed at promoting quality education in schools. In order to develop a responsive and effective caregiver capable of undertaking the foregoing, Obanya (2010) argued that caregivers require opportunities for continuous self-improvement; both career-long and career-wide opportunities that will enable them to acquire skills, knowledge and techniques needed for quality on the job performance. One of the skills and knowledge for caregiver effectiveness in the present classroom instruction is information and communication technology (ICT).

Schools have the responsibility of preparing learners for their current and future lives in the information society. Teachers, in particular, have a vital role to play in ensuring that students are placed in environments that will facilitate their acquisition of skills to do with effective searching, organizing, and using of information from different sources (Gilakjani, 2017). Such a role includes proper integration of technology so as to close the "digital divide" existing between users that have access to technology and those that do not (Puentedura, 2013). Digital divide manifests itself among Information and Communication Technology (ICT) users in many ways depending on their levels of ICT literacy. In this case, ICT refers to the means of accessing, retrieving, displaying and storing information through internet, wireless networks, cell phones, and other communication media (Canton & Danowski, 2015). Technology integration is defined

as the art and craft of using technologies in classrooms to effectively accomplish teaching and learning tasks (Gilakjani, 2017). To ensure this is possible, students need to be supported in various ways including making them ICT literate and supplying them with necessary technological resources (including radio, television, mobile phones, interactive whiteboards, tablets, computer and internet). Doing so is likely to improve students' academic performance.

Technology has become the knowledge transfer highway in most countries. Through integrating various technologies in different walks of life, societies are able to implement innovations that are transforming the way people think, work, and live (Grabe & Grabe, 2007). As advised by the national ICT Policy (Ministry of Works, Transport and Communication, 2016), schools and other education institutions responsible for preparing students for lives in the knowledge society need to integrate ICT in teaching and learning (Ghavifekr et al., 2012). Teachers are considered to be at the centre of ICT integration in teaching and learning activities because they are the ones to use ICT tools in classrooms to create more dynamic and proactive teaching and learning environments that enhance learning in this new era (Arnseth & Hatlevik, 2010).

Worldwide, the advent of information and technology communication (ICT) was seen by many practitioners and policymakers as being important for improving performance of caregivers (Olokoba et al., 2014). Therefore, ICT applications have been used in administration and management in schools because of the belief that they facilitate administration activities from data storage to knowledge management and decision making (Ghavifekr et al., 2013). ICT promotes the sharing of valuable resources and collaborative teaching (Livingstone, 2012). Hammami (2016) indicated that ICT bridges forms of knowledge and literacy, and intersects places of learning including school removing the traditional barriers that existed before its advent in terms of access to books, writing and databases among others.

Information and Communication Technology (ICT) is a major factor in shaping the new global economy and producing rapid changes in the society. Within the past few decades the new ICT tools have fundamentally changed the way people learn, communicate and do business. They have produced significant transformation in educational sector, industries, agriculture, medicine, business, engineering and other fields. They also have the potential to transform the nature of education –where and how learning takes place and the role of preschoolers and caregivers in the teaching-learning process.

Today's children are growing up in a world where ICT is an inescapable key component of daily life (Lee & Spires, 2009). As stated by Newbill and Baum (2013), the way the world works is being revolutionized by ICT. By today's standards, ICT envelops the future for which schools are charged with preparing their children (Ritzhaupt et al., 2012). With the advancements of ICT into mainstream life, ICT integration has rapidly become a driving force in education (Dougherty, 2012). Some of these ICT tools include the computer, an interactive whiteboard, projector, the Internet, course specific software, and many other options available today. The caregiver uses these tools to widen the children's reach and they complement and enhance what a caregiver does naturally.

Today caregivers have access to innovative tools with which to enhance their curriculum. One of these ICT tools for effective instruction in the classroom is the Internet, which has given the children a new way to do research, allowed caregivers to offer a wider topic range, and made available an endless amount of information. Additionally, the internet connects caregivers and children from all over the world so they can work collaboratively with other caregivers and

children anywhere in the world. Many caregivers are allowing children to use the Internet as a source of information for research projects assignments.

Computer as ICT tool can help the caregiver facilitate the knowledge-constructed classroom. Many researchers view computers as having a positive influence on the teaching and learning processes. These researchers have confirmed in their research with the use of computers in the classroom that schools can become more child-centered and offer more individualized learning than ever before, thereby enhancing caregiver effectiveness. In some situations, caregivers may not need to meet the children physically since all of the work for the class is completed online. Research completed by Roshelle et al. (2000) indicated that computers can be used in collaboration for all subject areas, but caregivers must take into account the different styles of teaching and the preschoolers' different styles of learning in order to use them effectively.

As observed by (Bordbar, 2005) caregivers' computer competence is a major predictor of integrating ICT in teaching. According to (Al-Oteawi, 2002) majority of caregivers who reported negative or neutral attitude towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make informed decision. A study by Peralta and Costa (2007) suggested that caregivers with more experience with computers have greater confidence in their ability to use them effectively. Jones (2005) reported that caregivers competence relates directly to confidence. Caregivers' confidence also relates to their perceptions of their ability to use computers in the classroom, particularly in relation to their children's perceived competence. Caregivers who have little or no confidence in using computers in their work will try to avoid them altogether (Dawes, 2000). Conversely, Newhouse (2002) found that many caregivers lacked the knowledge and skills to use computers and were not enthusiastic about the changes and integration of supplementary learning associated with bringing computers into their teaching practices.

ICT tools, especially personal computers, are often cited by educators and policymakers as magic-workers in literacy programs, providing great access to all children. Technological tools such as computer could help overcome skill-level barriers to learning. Computers could make the child smarter, if not wiser. A common view is that in using computers, children are so engaged and motivated by a viewing text they hardly realize they are accessing, reading, decoding, and analyzing information. As Kennedy (2006) stated that even if caregivers are not drawn to technology, they realize that computers are here to stay, and inevitably, they must resign themselves to developing sufficient technology skills.

Electronic learning in education is the wholesome integration of modern telecommunication equipment and ICT resources in the teaching and learning process and it can be online (synchronous) or offline (asynchronous) (Garrison & Anderson 2003). Most of the available options for effective use of ICT in support of education are much more powerful when the activity is linked in a communication network that permits access to email, web browsing, file transfers through downloading and uploading as well as other communications. The use of internet has become more prevalent in schools and has been shown to facilitate instructional delivery and enhance caregiver performance. According to Gulek and Demirtas (2005), there is substantial evidence that incorporating internet technology in the classroom as an instructional tool enhances caregiver's performance and educational outcomes.

The information and communication technology (ICT) is used by caregivers to present instructional events that are designed, developed and produced for an individualized learning situation. Information and communication technology (ICT) education is a method by which

individualized instruction can take place. It is an extension of programmed instruction (Nwoji, 2002). ICT is recognized as the most suitable, reliable and versatile medium for individualized learning used by caregivers due of its immense capacity as a data processor capable of performing numerous mathematical and logical operations. Information and communication technologies (ICTs) can create greater efficiency throughout the school; regular use of ICT by the caregivers across different curriculum subjects can have a beneficial motivational influence on students' learning communication channels are increased through e-mail, discussion groups, and it facilities sharing of resources, expertise and advice, gains in ICT literacy skills, confidence and enthusiasm, easier planning and preparation of lessons, and designing materials. It also helps in encouraging independent, active learning and self-responsibility for learning. In view of the above discourse, this research aims to examine caregivers' perception of the application of Information and Communication Technology and caregivers' effectiveness in early childhood education centres in Rivers East Senatorial District of Rivers State.

Statement of the Problem

In the attempt to improve the quality of education, more focus should be put on caregivers. This focus is based on the assumption that understanding the perception of caregivers on the application of information and communication technology in early childhood education centres will increase the knowledge about how to improve caregiver effectiveness. The ICT teaching tools in schools that caregivers work with aid and improve classroom instructions. The availability and accessibility of ICT tools such as the computer, and the internet could benefit their pupils and improve caregiver effectiveness. The caregiver's integration of these ICT tools into their classrooms will witness the benefits, such as improved preschooler's learning, motivation and increased caregiver effectiveness. Some caregivers are anxious about change and, therefore, shy away from ICT use. However, the ICT tools are user friendly and could possibly reap many rewards for the caregivers and pupils in the classroom.

In spite of these vital roles of ICT, caregivers seem not to see the need for the ICT tools as they still carry out their classroom instruction in such a manner that does not make for effectiveness in the classroom. In view of the perceived situation, it is important to examine the perception of caregivers on the application of Information and Communication Technology and teaching effectiveness of caregivers in public early childhood centres in Rivers East Senatorial District of Rivers State.

Purpose of the study

The main aim of this study was to examine caregivers' perception on the application of Information and Communication Technology and teaching effectiveness in public early childhood education centres in Rivers East Senatorial District of Rivers State. Specifically, this study aim to:

- Determine the difference in the perception of male and female caregivers on the application of computer and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

- Examine the difference in the perception of male and female caregivers on the application of the internet and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

Hypotheses

The following hypotheses were tested at .05 level of significance:

- There is no significant difference between the perception of male and female caregivers on the application of the computer and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.
- The perception of male and female caregivers does not significantly differ on the application of the internet and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

METHODS

A descriptive survey research design was used for the study. The population comprised 2,415 caregivers found in 521 public Early Childhood Care Centre in Rivers East Senatorial District of Rivers State (Rivers State Universal Basic Education Board, 2022). A sample of 482 caregivers represents approximately 20% of the entire population was drawn using stratified random sampling and simple random sampling technique. The instrument for data collection was the researcher's self-designed questionnaire titled "Caregivers' Perception on the Application of Information and Communication Technology and Teaching Effectiveness Questionnaire (CPAICTTEQ).

The instrument's validity was determined by two research experts in the Department of Early Childhood/Primary Education at Ignatius Ajuru University of Education, Port Harcourt. The reliability of the instrument was determined through a test-retest method. The reliability coefficient obtained was 0.68. With this reliability coefficient, the instrument was adjudged to be reliable for the study. On arrival at the sampled schools, permission was sought and obtained from the head-teachers. 482 copies of the instrument were distributed to the respondents (caregivers) to elicit the required information from them.

To ensure effectiveness and efficiency, maximum return and a high degree of objectivity, copies of the CPAICTTEQ were distributed to the caregivers directly by the researcher and four (4) research assistants per stratum that were trained by the researcher on basic content of the CPAICTTEQ and the format for responding to it. This was done for ease of administration of the CPAICTTEQ. The respondents were briefed on the aim and objectives of the study, at the same time indulging their honest responses. All the copies of the CPAICTTEQ that were administered were retrieved after the responses have been elicited. The exercise lasted for two days. Mean and standard deviation were used in answering the research questions, while the independent t-test was used in testing the null hypotheses at 0.05 level of significance.

RESULT AND FINDINGS

Null hypothesis one: There is no significant difference between the perception of male and female caregivers on the application of the computer and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

Table 1: Summary of analysis of independent t-test for hypothesis one

Variables	N	X	SD	df	t _{cal}	t _{crit}	Decision
Perception of female caregivers on the application of computer and caregivers' teaching effectiveness	403	3.26	.579	480	4.95	1.960	Null hypothesis is rejected
Perception of male caregivers on the application of computer and caregivers' teaching effectiveness	79	3.06	.824				

Table 1 shows that at 0.05 level of significance and with a df of 480, the calculated value of t (4.95) is greater than the critical value of t (1.960), this means that the null hypothesis is rejected. Therefore, there is a significant difference between the perception of male and female caregivers on the application of the computer and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

Null hypothesis two: The perception of male and female caregivers does not significantly differ on the application of the internet and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

Table 2: Summary of analysis of independent t-test for hypothesis two

Variables	N	X	SD	df	t _{cal}	t _{crit}	Decision
Perception of female caregivers on the application of internet and caregivers' teaching effectiveness	403	2.92	.673	480	4.63	1.960	Null hypothesis is rejected
Perception of male caregivers on the application of internet and caregivers' teaching effectiveness	79	3.35	.712				

Table 2 shows that at 0.05 level of significance and with a df of 480, the calculated value of t (4.63) is greater than the critical value of t (1.960), this means that the null hypothesis is rejected. Therefore, the perception of male and female caregivers does significantly differ on the application of the internet and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State.

DISCUSSION

The findings in hypothesis one shows that at 0.05 level of significance and with a df of 480, there is a significant difference between the perception of male and female caregivers on the

application of the computer and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State. This finding is in agreement with the findings of Kennewell (2005) who found in his study of schools in Wales that caregivers have evolved considerably and successfully in both course content and pedagogy through both individual and cooperative integration of computer into their teaching methods. The finding also agrees with the findings of Cox et al. (2003) who undertook a review of the research and then concluded that computer had indeed had a positive effect on attainment in National Curriculum subject areas. They qualified this assertion by stating that it was not just the everyday use of computer as a tool, but the skillful use of computer by the caregiver, when linked to careful pedagogical strategies enhancing classroom communication.

Findings in hypothesis two shows that with a df of 480 and at 0.05 level of significance, perception of male and female caregivers does significantly differ on the application of the internet and teaching effectiveness of caregivers in public early childhood education centres in Rivers East Senatorial District of Rivers State. This finding is in agreement with the views of Gulek and Demirtas (2005) who opined that there is substantial evidence that incorporating internet technology in the classroom as an instructional tool enhances caregiver's performance and educational outcomes. Also, the finding agrees with the findings of Caruso and Kvavik (2005) who in their findings established that caregivers who possess the ability to incorporate internet technology as a source of information affect higher student engagement, more student interest, and greater student understanding and academic performance.

CONCLUSION

Information and Communication Technology greatly enhance the teaching effectiveness of caregivers in early childhood education centres. The information and communication technology functions as a link in the teaching/learning experience. The teaching and classroom interaction in early childhood education centres could be herculean to the caregiver. To this end, the information and communication technology could help the caregiver for effective lesson delivery and enhance preschoolers learning and development in early childhood education centres.

Recommendations

Based on the findings of the study, the following recommendations were made:

- There is need for the government to provide information and technology gadgets in all the public early childhood education centres in the state and make it effective.
- Caregivers should employ the use of information and communication gadgets in the teaching/learning experience in the classroom in public early childhood education centres.
- The management of the early childhood education centres should encourage parent, non-governmental organizations and public-spirited individuals to help in providing these ICT gadgets in public early childhood education centres.

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