To Evaluate The Influence Of Availability Of Ict Resources On Integration Of Ict On Acquisition Of Literacy Skills Among Pre-Primary Learners In Kasarani Sub-County.

Monicah Njeri Ndung'u, Dr. Ong'ang'a Hudson Ouko & Dr. Joyce Gikandi

Abstract
Early literacy skills play a significant role of communication in everyday life and from infancy through early childhood to primary levels of education. However, in Kasarani Sub-county, acquisition of literacy skills amongst ECDE learners has been erratic. ECDE learners manifest cases of poorly developed reading, writing and speaking skills despite the emerging trend of global investment in ICT to improve literacy skills development. Thus, the purpose of the study was to assess the influence of integration of information communication and technology on acquisition of literacy skills in ECDE centers in Kasarani Sub-county, Nairobi County, Kenya. The objectives included; assessing the influence of teachers' characteristics, availability of ICT facilities and school management ICT support on acquisition of literacy skills in early childhood education. From each zone, one headteacher from the sampled schools and 10 ECDE teachers were selected using purposive sampling. From each zone, nine ECDE learners were selected suing simple random sampling to avoid bias. This procedure enabled the researcher to realize a sample of five headteachers, 50 ECDE teachers and 45 ECDE learners. Questionnaires were used to collect data from ECDE teachers, interview guide for headteachers and observation checklist for ECDE learners. Data analysis began by identifying common themes from respondents' description of their experiences. Qualitative data was analyzed thematically along the study objectives and presented in narrative forms whereas quantitative data was analyzed descriptively and inferentially using ANOVA using Statistical Packages for Social Science (SPSS 23) and presented using tables and charts. The study established that teachers' characteristics, availability of ICT facilities and school management support influence integration of ICT as a strategy for enhancing ECDE learners' acquisition of literacy skills. However, most ECDE teachers lack pre-requisite ICT training, inadequate ICT facilities and minimal school management support which has negatively impacted on integration of ICT in ECDE centers. The study thus recommends that the training for ECDE teachers should incorporate technological aspects to enable them integrate ICT in teaching. The stakeholders should provide adequate ICT facilities and resources for effective integration of ICT in ECDE centers.

I.Background Information Of The Study

As a result of globalization and the spread of ICT across all sectors of society, we currently have a social system that is information-based and progress-driven. The notion of Proficiency abilities securing rely on ICT integration and the impact of educators components, openness of ICT resources and school back on integration of ICT. Penuel's (2012) randomized-controlled preparatory tried the impacts of a media-rich capability capacities supplement that pre-owned TV appears in early childhood instruction proficiency abilities ponder corridors, and the results appeared that kids who got the media supplement made more significant improvements on letter affirmation, phonics, print, and story thoughts.

As a matter of fact, lately joined, ICT genuine workplaces should be created and materials obtained to support productive activation of the program Asset materials and workspaces demand not just being open but being inside the adjust sums. Teachers are confused and demoralized when their classroom supplies and office space go missing. Keengwe and Onchwari (2008) state that a teacher's effectiveness and productivity will increase significantly if they have access to materials and classrooms that their students enjoy while still providing them with the tools they need to succeed. Information and communication technology (ICT) is commonly associated with how computers and the internet may be harnessed to improve the effectiveness and breadth of the process of acquiring competence skills in the context of youth preparation center training. In a similar vein, a study by Wachira and Keengwe (2010) in Kenya's Machakos East Area found that ICT has had a revolutionary impact on tutoring systems, as it has the potential to be a truly mind-blowing resource for expanding teacher flexibilities

and empowering the obtainment and digestion of data with the aid of computer.It's a similar story in Kasarani Sub-County, where young kids are immersed in an environment shaped by intuitive media. Republic of Kenya (2013) reports that children in early childhood education centers are accustomed to using high-tech devices, which are rapidly becoming ingrained in daily life at home, in the classroom, and on the job. All things considered, the rise of the rebellious for communication, collaboration, person-to-person communication, and client-made content has altered the norms of society. In particular, these uprisings have altered the ways in which parents manage their homes and seek out redefinition, educators make use of resources during assessment campaigns with young students and in dialogue with their parents, and educational knowledge is transmitted and applied. Despite this success, difficulties remain in acquiring the necessary skills for ICT integration in early childhood education centers. Since so little is known about how much ICT integration has improved the securing of proficient talents, this analysis will require additional research.

Significance of the Study

The study could be useful for pre-primary teachers because it could provide data on the use of ICT to ensure students' educational development. The assessed writing could provide more data on how well schools in Kasarani Sub-County are set up for coordinated ICT. This research could help the Service of Instruction identify and address gaps so that schools can more easily coordinate ICT in acquiring competency skills. The findings may also encourage pre-primary students to strongly grasp the use of ICT in securing conceptions of proficient abilities, therefore the investigation may be useful for them. To keep up with the rapid pace of technological advancement, this may be necessary. Children in pre-primary grades would benefit from the seamless integration since it would expose them to new areas of study that will help them develop to their fullest potential.

The study could be useful for pre-primary educators if it includes information on the effectiveness of ICT in ensuring the development of teaching skills in the youngest students. The data gathered by evaluating the submitted writing would improve school ICT planning in Kasarani Sub-County. The information gathered from this study may help the Benefit of Instruction fill in the gaps and better serve the schools. ICT for simple skill development and expansion. Students in elementary school and even pre-school might profit from this line of thinking, as the information provided could encourage them to more fully grasp the application of ICT in the acquisition of capability capacities concepts. Given the state of the art in machinery, this may be crucial in coordinating the necessary oversight. Young pre-primary students might benefit greatly from the integration because it would assist show them targeted areas of data that they could use to their fullest capacity.

II.Teacher Factors And Integration Of ICT

There are many different factors that go into deciding how much of a development a teacher gets, such as their experience, age, sexual orientation, how often they interact with students, how well they know their way around a computer, and how they act towards computers (Schiller, 2003). Teachers are expected to learn how to incorporate information and communication technologies (ICT) into lessons in order to help students acquire new skills and knowledge. However, the development's legitimacy is determined not by its mere presence in the youth preparation center debate but rather by teachers' ability to successfully incorporate ICT into lessons (Jones, 2001). Teachers' views on progress profoundly influence how they deploy and modify computing resources to safeguard instructional capacities.

Russell and Bradley (2007) found that apprehension, uncertainty, and concern about the future were reduced by the use of information and communication technologies (ICT) in youth education centers. Therefore, expanding the curriculum and boosting the academic performance of pre-primary students requires an understanding of the personal traits that influence educators' collection and mix of ICT into safeguarding of education abilities. These claims are supported by research by Wheeler (2000), who conducted a longitudinal study in the Czech Republic and showed that factors such as educator age, sex, and participation in the acquisition of educational abilities affect the incorporation of ICT in early childhood instruction centers.

Researchers have found that younger people, in comparison to more methodical ones, are more likely to use information and communication technologies, as demonstrated by Wheeler (2000). As Wheeler (2000) makes abundantly evident, those who are more firmly established either lack the necessary information or are too afraid to use ICTs. The established are more fearful of current movements than the young are. These revelations corroborate the hypothesis that teachers' gender roles influence their use of technology in the classroom, with studies showing that female educators use computers at higher rates than their male counterparts thanks to greater access to and interest in technological advances. When comparing male and female teachers, we find that male teachers rely more heavily on ICT for acquiring capability capacities and governing measures. Markauskaite (2006) conducted a study among 17 educators in Australia to investigate gender differences in self-nitty-gritty ICT engagement and ICT capability capacities among first-year graduate understudy teachers. Huge gaps in ICT limitations, as well as situational and longitudinal supportability, were found between men and women in the sample.

Similarly, a report by Tubbs (2013) in Venezuela suggests that teachers with fewer years of experience are more likely to use computers in the classroom than teachers with a large number of significant years of experience. There is a possibility that this is a secondary effect of the fact that today's educators are more likely to have been exposed to computers early in their training. Kozma (2003) found that in early childhood education centers in Sub-Saharan Africa, teachers' ability to use underutilized media was significantly impacted by teachers' participation in and communication about, for example, the sharing of teachers' experiences with information and communication technology (ICT) and the common desire to put this knowledge to use.

According to research undertaken by Oladosu (2012) in Lagos State, Nigeria, teachers' faith in the efficacy of technological progress is a crucial additional determinant of teachers' dedication to the use of underutilized media in Proficiency capacities classrooms. Teachers at youth centers who don't see the value of ICT in education will try to get around it. Oladosu (2012) elucidates step by step that a few educators in youth instruction facilities are reluctant to use computers because they lack confidence in or are intimidated by them. In spite of the claims of Isaacs (2007), who found that teachers at youth preparing centers who have a reasonable degree of specialized skill and who use PCs to address their own capable prerequisites use PCs in more expansive and more advanced behavior with youth tutoring center pre-essential understudies than teachers who have confined specialized caliber, the absence of ICT-ability is undeniably a barrier to the use of modern media in classrooms. According to Lawrence and Veena's (2013) research conducted in Kenya, a teacher's evaluation may be an important factor in elucidating the use of information and communication technologies (ICT) in the youth tutoring center setting. Makewa, Meremo, Part, and Part (2013) included both age and a long time of securing of proficiency abilities in their analysis and reason that these socioeconomics differently impact the joining of ICT by educates. Lawrence & Veena (2013) in Kasarani Sub-County also specified age as a calculate related to ICT integration in early childhood instruction center procurement of proficiency aptitudes and learning.

However, it is unclear from Lawrence and Veena (2013) and Makewa et al. (2013) whether or not the characteristics and socioeconomic status of teachers, such as their level of education, involvement in the acquisition of reading and writing skills, ICT competency, and introduction, influence the integration of ICT in securing of reading and writing skills. Specifically, it is unclear how the characteristics of teachers influence the integration of ICT in early childhood instruction centers where reading and writing skills are developed to broaden the scope of the curriculum and advance the academic performance of pre-primary students.

III.Research Methodology

A well-defined overall strategy was used in this investigation. This made it possible to gather data through in-person meetings, regulated surveys, or tests of persons (Orodho,2003). This strategy allowed the researcher to simultaneously implement both quantitative and subjective approaches, without incurring any undue resource costs (Creswell 2009). This approach was selected because of its malleability, which allowed for the inclusion of both quantitative and subjective data, leading to a more complete comprehension of the topic under investigation. The research was carried out in the Kasarani Sub-County of the Nairobi Province. A target population of 918 respondents was included in the study including 27 headteachers,81 pre-essential instructors and 810 pre-essential students. The data collection tools like these let researchers' piece together crucial facts about their chosen fields of study. Which were questionnaire for pre-primary Teachers, interview guide for headteachers and observation checklist analysis guide. The preliminary test of the examination disobedient in order to bolster its genuineness, reliability, validity, and consistency. The investigation utilized essential and discretionary data. Basic data was acquired utilizing survey & meet plan that were customised and maintained by researcher. Secondary Information was acquired by Writing survey & through government and private division distributions.

IV.Results And Finding
Availability of ICT Facilities and Integration of ICT in Acquisition of Literacy Skills

As per research question three, the study intended to find out how availability of ICT facilities has influenced acquisition of literacy skills. Data was collected from ECDE teachers and organized into specific thoughts and results are shown in Table 1;

Table 1: ECDE Teachers' Views on the Influence of Availability of ICT Facilities on Integration of ICT in Acquisition of Literacy Skills

Summary of Test Items	SA %	A %	U %	D %	SD %	Mean	St. Dev.
Availability of DVD players has not enhanced ECDE learners' acquisition of reading skills	54.8	20.6	5.1	14.4	5.1	3.337	0.741
Availability of DVD players has not enhanced ECDE learners' acquisition of writing and speaking skills	61.6	17.7	3.9	10.5	6.3	3.752	0.833
Availability of radios has not enhanced ECDE learners' acquisition of reading skills	59.9	19.8	2.5	12.2	5.6	3.648	0.810
Availability of radios has not enhanced ECDE learners' acquisition of writing and speaking skills	65.9	13.4	3.7	10.3	6.7	4.013	0.891
Availability of computers has not enhanced ECDE learners' acquisition of reading skills	69.1	18.1	2.8	7.0	3.0	4.208	0.934
Availability of computers has not enhanced ECDE learners' acquisition of writing and speaking skills	70.1	11.9	1.9	8.3	7.8	4.269	0.948
Availability of projectors has not enhanced ECDE learners' acquisition of reading skills	55.2	15.3	3.5	20.8	5.2	3.362	0.746
Availability of projectors has not enhanced ECDE learners' acquisition of writing and speaking skills	51.3	11.9	3.7	21.9	11.2	3.124	0.694

Source field Data (2020)

Table 10 reveals that slightly more than half (54.8%) of the ECDE teachers strongly agreed with the view that availability of DVD players has not enhanced ECDE learners' acquisition of reading skills. At the same time, 21.6% agreed. On the contrary, only a small proportion of 5.1% of the ECDE teachers were undecided, 14.4% disagreed whereas 5.1% strongly disagreed. On average, these findings generated a mean of M = 3.337, Std. Deviation = 0.741. The study also revealed that a fair majority (61.6%) of the ECDE teachers strongly agreed with the view that availability of DVD players has not enhanced ECDE learners' acquisition of writing and speaking skills as did 17.7% of the ECDE teachers. However, 3.9% of the ECDE teachers were undecided, 10.5% disagreed whereas 6.3% strongly disagreed. On average, these findings generated a mean of M = 3.752, Std. Deviation = 0.833.

These findings lend credence to the corroborate the assertions of Van Rij and Warrington (2010) that ECDE teachers perceive greater control to employ technology into instructional use when they have the necessary hardware and software resources. The findings also lend credence to the assertions of Becker (2000) who reported that with the ICT infrastructure provided, the ECDE teachers are able to access school network, the internet and laptop accessories such as printer, digital camera, data projector, large TV screen, scanner and video camera. These findings attest to the fact that ECDE teachers have more prospects to utilize instructional technology when the ICT infrastructures are provided in a well manner. Besides, ICT infrastructure can be one of the factors that influence the technology use among the ECDE teachers.

Similarly, slightly more than half (59.9%) of the ECDE teachers strongly agreed that the availability of radios has not enhanced ECDE learners' acquisition of reading skills as did 19.8% of the ECDE teachers. However, 2.5% of the ECDE teachers were undecided, 12.2% disagreed whereas 5.6% strongly disagreed.

On average, these findings generated a mean of M = 3.648, Std. Deviation = 0.810. Majority (65.9%) of the ECDE teachers strongly agreed with the view that availability of radios has not enhanced ECDE learners' acquisition of writing and speaking skills as did 13.4% of the ECDE teachers. However, 3.7% of the ECDE teachers were undecided, 10.3% disagreed whereas 6.7% strongly disagreed. On average, these findings generated a mean of M = 4.013, Std. Deviation = 0.891. Majority (69.1%) of the ECDE teachers strongly agreed with the view that availability of computers has not enhanced ECDE learners' acquisition of reading skills. At the same time, 18.1% were also in agreement. However, 2.8% of the ECDE teachers were undecided, 7.0% disagreed whereas 3.0% strongly disagreed. On average, these findings generated a mean of M = 4.208, Std. Deviation = 0.934.

These findings were consistent with the findings of a study conducted in Mozambique by Balanskat (2007) which indicated that effective use of ICT in ECDE centers for teaching and learning would require the availability of equipment, supplies of computers and their proper maintenance including other accessories. In

other words, integration of ICT in acquisition of literacy skills demands other resources, such as computers, printers, multimedia projectors and scanners which are not available in all the ECDE centers.

An impressive majority (70.1%) of the ECDE teachers strongly agreed with the view that availability of computers has not enhanced ECDE learners' acquisition of writing and speaking skills. At the same time, 11.9% were also in agreement. However, 7.8% of the ECDE teachers were undecided, 8.3% disagreed whereas 3.0% strongly disagreed. On average, these findings generated a mean of M = 4.269, Std. Deviation = 0.948. The study also revealed that more than half (55.2%) of the ECDE teachers strongly agreed with the view that availability of projectors has not enhanced ECDE learners' acquisition of reading skills as did 15.3% of the ECDE teachers. On the other hand, 3.5% of the ECDE teachers were undecided, 20.8% disagreed whereas 5.2% strongly disagreed. On average, these findings generated a mean of M = 3.362, Std. Deviation = 0.746. The study also revealed that more than half (51.3%) of the ECDE teachers strongly agreed with the view that availability of projectors has not enhanced ECDE learners' acquisition of writing and speaking skills as did 11.9% of the ECDE teachers. On the other hand, 3.7% of the ECDE teachers were undecided, 21.9% disagreed whereas 11.2% strongly disagreed. On average, these findings generated a mean of M = 3.124, Std. Deviation = 0.694. These findings indicate that availability of ICT resources and infrastructure remain major dynamics for integration of ICT in teaching and learning process in ECDE centers.

Inferential Findings on Availability of ICT Facilities and Acquisition of Literacy Skills
To verify the possibility of difference between availability of ICT facilities and ECDE learners' acquisition of literacy skills, data was collected on the number of ECDE centers with ICT facilities and ECDE learners' performance in reading, writing and speaking skills and results are shown in Table 2:

Table 2: Results of Number of ECDE Centers with ICT Facilities and ECDE Learners' Performance in Reading, Writing and Speaking Skills

Number of ECDE Centers with ICT Facilities	Performance in Literacy Skills (%Mean score)		
	Reading Skills	Writing Skills	Speaking Skills
3	21	23	19
5	27	29	33
11	43	50	51
17	61	59	58

Source field Data (2020)

Table 11 indicate that ECDE centers with many ICT facilities have their ECDE learners perform better in literacy skills, that is, reading, writing and speaking skills. This implies that availability and use of different types of ICT materials enhanced ECDE learners' acquisition of writing and speaking skills. For example, ECDE learners taught using concept DVDs and radios registered impressive grades. On the same breath, ECDE teachers who adopted use of computers and projectors in teaching had their ECDE learners perform fairly.

The study was identical to results obtained by Anne N at, al (2013) where they indicated that use of ICT in teaching and learning among preschoolers in selected Kenyan preschools. A questionnaire designed by a researcher was utilized to gather data from 395 pre-school teachers who were attending training sessions. Results showed that only 39.17% of the teachers had knowledge of ICT. Furthermore, 86.99% of the teachers had not attended any government-sponsored ICT workshops during their careers. All teachers believed that integrating ICT into teaching and learning would greatly improve their teaching, and expressed a willingness to undergo ICT training if given the opportunity. Based on these findings, the study recommends that the government should invest more in training pre-school teachers in ICT integration.

These results were subjected to ANOVA and results are shown in Table 3:

Table 3: ANOVA Analysis of the Difference between Means of the Number of ECDE Centers with ICT Facilities and ECDE Learners' Performance in Reading, Wring and Speaking Skills

		Sum of Squares	df	Mean Square	F	Sig
Number of ECDE Centers with ICT Facilities		2554.250	3	851.417		
Reading Skills	Writing Skills	2804.250	3	934.750	25.094	.000
	Speaking Skills	335.250	9	37.250		
	Total	3139.500	12	261.625		
	Total	5693.750	15	379.583		

Grand Mean = 31.8750
Source field Data (2020)

From the ANOVA Statistics in Table 12, the processed data, which is the population parameters, had a significance level of 0.000 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value of 0.000) is less than 5%, that is, p-value=0.000<0.05. It also indicates that the results were statistically significant and that there is significant difference between availability and use of different type of ICT facilities and ECDE learners' acquisition of writing and speaking skills. These findings corroborate the assertions of Gakuu & Kidombo (2010) that the development of the ICT infrastructure in a country is dependent on the availability of a reliable electricity supply. Integration of ICT in Acquisition of literacy skills demands other resources, such as computers, printers, multimedia projectors and scanners which are not available in all the ECDE centers. Besides, ICT requires up-to-date hardware and software which is a key feature in the diffusion of ICT. In Kenya, Gakuu and Kidombo (2010) posit that ICT resources and facilities in schools are designed and enabled in the direction of supporting continuous transformation and development of various teaching and learning approaches.

Thematic Analysis of Qualitative Findings on Availability of ICT Facilities and Integration of ICT in Acquisition of Literacy Skills

Qualitative data was also collected using interviews. During the interviews, headteachers noted that availability of DVD players has enhanced ECDE learners' acquisition of reading skills and has enhanced ECDE learners' acquisition of writing and speaking skills. These views were consistent the assertions of Van Rij and Warrington (2010) that ECDE teachers perceive greater control to employ technology into instructional use when they have the necessary hardware and software resources. In the same vein, these views corroborate the assertions of Becker (2000) who reported that with the ICT infrastructure provided, the ECDE teachers are able to access school network, the internet and laptop accessories such as printer, digital camera, data projector, large TV screen, scanner and video camera.

These views point to the fact that ECDE teachers have more prospects to utilize instructional technology when the ICT infrastructures are provided in a well manner. Besides, ICT infrastructure can be one of the factors that influence the technology use among the ECDE teachers.

The interviewees noted,

"*Availability of radios has not enhanced ECDE learners' acquisition of reading, writing and speaking skills as did use of computers and projectors*".

These views were consistent with the findings of a study conducted in Mozambique by Balanskat (2007) which indicated that effective use of ICT in ECDE centers for teaching and learning would require the availability of equipment, supplies of computers and their proper maintenance including other accessories. Besides, integration of ICT in acquisition of literacy skills demands other resources, such as computers, printers, multimedia projectors and scanners which are not available in all the ECDE centers. In addition, these views affirm the fact that availability of ICT resources and infrastructure remain major dynamics for integration of ICT in teaching and learning process in schools.

V.Summary, Conclusion And Recommendation

Summary availability of ICT Facilities and Integration of ICT in Acquisition of Literacy Skills

The study further revealed that availability of ICT physical infrastructure and resources has influenced integration of ICT in acquisition of literacy skills. Availability of DVD players, radios, computers and projectors has enhanced ECDE learners' acquisition of reading skills and enhanced ECDE learners' acquisition of writing and speaking skills which is indicative of the fact that ECDE teachers perceive greater control to employ technology into instructional use when they have the necessary hardware and software resources. With the ICT infrastructure provided, the ECDE teachers are able to access school network, the internet and laptop accessories such as printer, digital camera, data projector, large TV screen, scanner and video camera. That is, ECDE teachers have more prospects to utilize instructional technology when the ICT infrastructures are provided in a well manner. Besides, ICT infrastructure can be one of the factors that influence the technology use among the ECDE teachers and effective use of ICT in ECDE centers for teaching and learning would require the availability of equipment, supplies of computers and their proper maintenance including other accessories. Besides, integration of ICT in acquisition of literacy skills demands other resources, such as computers, printers, multimedia projectors and scanners which are not available in all the ECDE centers.

Availability of ICT Facilities and ICT Integration in Acquisition of Literacy Skills

Availability of DVD players, radios, computers and projectors has enhanced ECDE learners' acquisition of reading skills and enhanced ECDE learners' acquisition of writing and speaking skills which is indicative of the fact that ECDE teachers perceive greater control to employ technology into instructional use when they have the necessary hardware and software resources. With the ICT infrastructure provided, the ECDE teachers are able

to access school network, the internet and laptop accessories such as printer, digital camera, data projector, large TV screen, scanner and video camera. That is, ECDE teachers have more prospects to utilize instructional technology when the ICT infrastructures are provided in a well manner.

References

[1] Adre, P. & Sullivan, M. (2008). Site Report: Academic Learning Program. Unpublished Paper, National Center For Research On Teacher Education, Michigan State University, East Lansing.
[2] Ajayi, K. (2011). School Choice And Educational Mobility: Lessons From Early Childhood Education Center Applications In Ghana. University Of California-Berkeley Working Paper
[3] Forsyth, I. (2012). Teaching And Learning Materials And The Internet. London: Kogan Page.
[4] Gakuu, C. & Kidombo, H. (2010). Pedagogical Integration Of Ict In Selected Kenyan Early Childhood Education Centers. Application Of Benettes Hierarchy. University Of Nairobi, Kenya.
[5] Gullo, D. F. (2013). Improving Instructional Practices, Policies, And Student Outcomes For Early Childhood Language And Literacy Through Data-Driven Decision Making. Early Childhood Education Journal, 41, 413-421.
[6] Kargiban, Z. & Siraj, S. (2009). The Utilization And Integrating Of Ict In Chemistry Teaching In Iranian High Schools. World Applied Sciences Journal 6(11): 1447.
[7] Karyadia, A. C., & Khasanahb, U. (2019). Development Of Early Childhood Education Teachers (Paud) Skills In Story Activities Using Natural Material Media Potential Of Local Wisdom In Tulang Bawang District. Development, 7(3).
[8] Lawrence, A. & Veena, K. (2013). Improving Teacher Competency Through Ict. Teacher Competencies.
[9] Makewa, L., Meremo, J., Role, E. & Role, J. (2013). Ict In Early Childhood Education Center Administration In Rural Southern Kenya: An Educator's Eye On Its Importance And Use. International Journal Of Education And Development Using Information And Communication Technology Vol. 9, No. 2, Pp. 48-63.
[10] Mikre, F. (2011). The Roles Of Ict In Education. Review Article With Emphasis To The Computer And Internet. Ethiopian Journal Of Education And Science, Vol. 6, No. 2.
[11] Nikolopoulou, K., Akriotou, D., & Gialamas, V. (2019). Early Reading Skills In English As A Foreign Language Via Ict In Greece: Early Childhood Student Teachers' Perceptions. Early Childhood Education Journal, 47, 597-606.
[12] Nut, J. (2010). Professional Educators And The Evolving Role Of Ict In Schools. Perspective Report.
[13] Republic Of Kenya (2013). Working Draft-Information And Communication Technology Sector Policy Guidelines; Nairobi: Government Printer.
[14] Russell, G., & Bradley, G. (2007). Teachers' Computer Anxiety: Implications For Professional Development. Education And Information Technologies, Vol. 2, Pp.17-30.
[15] Summak, M. & Samancioglu, M. (2011). Assessment Of Technology Integration In Vocational Education And Training Schools. International Journal Of Education And Development Using Information And Communication Technology, Vol.1, No.1.
[16] Uwezo (2011). The Effects Of Sociodramatic Play On Problem-Solving Behavior Among Culturally Disadvantaged Learners In Early Childhood Education Centers. Child Development.
[17] Van Ark, B. (2011). Economic And Social Benefits Of Ict: Presentation For Conference On "Fiber Networks: Demand And Analyses Of Costs And Benefits. The Conference Board.
[18] Wildova, R., & Kropáčková, J. (2015). Early Childhood Pre-Reading Literacy Development. Procedia-Social And Behavioral Sciences, 191, 878-883.