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INFLUENCE OF ECDE TEACHERS' TECHNOLOGICAL SKILLS ON THE IMPLEMENTATION OF EARLY YEARS' EDUCATION COMPETENCY BASED CURRICULUM

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ABSTRACT

The purpose of this research study was to investigate the influence of technological skills on the implementation of competence based curriculum in Kalawa Zone, Makueni County. The study was guided by the 'Visible Learning Theory' by John Hattie (2012), who observes globally that fundamental changes in education systems has important implications for curriculum reforms. The study adopted descriptive survey research design. The study targeted all the 15 ECDE Teachers, the lower primary teachers and all the head teachers within Kalawa zone in Makueni County. Head teachers were also included. CSO's office gave the necessary needed raw data. The researcher purposively sampled two ECDE Centres and two head teachers within the zone. Simple random sampling was used to select the specific number of children in each selected ECDE Centre Research instruments included questionnaire forms, interviews and observation checklist. Piloting was done in two schools outside Kalawa zone in Waia Zone in Kisau Ward. Their responses were analyzed to determine if they meet the objectives and research questions of the study. Data analysis was carried out using the Statistical Package of Social Sciences [SPSS] Version 24 software. Descriptive statistics were worked out and presented using frequencies, percentages and tables. Frequency distribution tables were also used. The study established that influence of technological skills influence implementation of competence based curriculum as a strategy for enhancing ECDE learners' acquisition competencies. However, most ECDE teachers lack pre-requisite ICT training, inadequate facilities,

negative attitude towards integration of ICT and minimal school management support which has negatively impacted on implementation of competence based curriculum in ECDE centers. The study thus recommends that the training for ECDE teachers should incorporate technological aspects to enable them integrate ICT in teaching.

Key Words: Teachers' Technological skills, Early Years Education, Preschool, Implementation, CBC

1.0 INTRODUCTION

Competency-Based Education (CBE) has become a major topic of discussion in many education systems in the world today. According to Pearson (2015), CBE has captured the imagination of many higher education institutions across North America for good reason. CBE places learners where they belong- at the centre of the learning process. According to Gervais (2016), Competency-based learning and training is an approach to teaching and learning often used in learning concrete skills than abstract learning. Learners work on one competency at a time that is a small component learning approach. Every individual skill or learning outcome (known as a competency) will lead to a larger learning goal. The learner is evaluated on the individual competency and can only move on to other competencies after he or she has mastered the current skill being learned. Afterwards higher or more challenging competencies are learned to a point of mastery and are isolated from other topics. Another common component of competency-based learning is the ability to skip learning modules entirely if the learner can demonstrate mastery. As a learning method, Competency is a learner focused and works naturally with independent study and with the teacher in the role of a facilitator. This learning method allows a learner to learn those individual skills they find challenging at their own pace, practicing and refining as much as they like. They then move rapidly to other skills which are more challenging (Collected Papers of Charles Sanders Peirce 2016).

According to Richard & Rogers (2001), Competence-based curriculum can be traced back to the early 1970s when this type of education emerged for the first time in the United States of America. It is educational movements that define educational goals in terms of precise measurable descriptions of knowledge, skills, and behaviors learners had to possess at the end of the course of study. Thereafter, the movement spread into European countries such as the United Kingdom and Germany in the 1980s (Wolf, 2001). Other countries worldwide have been motivated to implement the competence-based curriculum in schools due to the ever changing technology and global market.

In Africa, competence-based curriculum was adopted for the first time in South Africa in 1998, following the acute shortage of professionals like engineers, technicians and artisans. South Africa adopted the competence based curriculum in a bid to change attitudes of all South Africans and equip them with employable skills to cope with challenging issues in the 21st century. According to Ngendahayo, E. &Askell-Williams, H. (2016) Rwanda has embarked on curriculum reform to improve on the quality on education. This is a crucial step in the direction of Rwanda's ambition to "develop a knowledge-based society and the growth of regional and global completion in the jobs market" (REB,2015).

In Tanzania, Dr. Luka Mathayo Mkonongwa, Department of Educational Psychology and Curriculum Studies Dar es salaam University College of Education (DUCE), in his paper'Competency-based teaching and learning approach towards quality education', has mentioned that Competence-based teaching and learning has been recognized in many education systems in recent years. It is a system which challenges the traditional practice of focusing on coverage of the content without paying due attention to mastery of skills. Based on secondary sources, this paper explores how competence-based teaching and learning can contribute to improvement of the quality of education particularly in Tanzania.

In Kenya, new system of education is designed by the Kenya Institute of Curriculum Development (KICD) team and was launched by the ministry of education in 2017. The CBC is designed to emphasize the significance of developing skills and knowledge and also applying those competencies to real life situations. On the path of achieving the dream of the new "competence based curriculum", as referred to, the researcher starts by briefly highlighting the history of education in Kenya. Before the coming of the Europeans, Societies in Kenya had traditional systems of education whose primary objective was to train individuals to fit into their societies as useful members. The curriculum is designed to ensure that it provides opportunities to identify the potential that every

learner brings to school and nurture this potential through the learning pathways and tracks that will be provided at Senior School. The mission will ensure that no child is labeled a failure at the end of basic education. (From: The Basic Education Curriculum Frame Work; KICD 2017**).** KalawaZone, which is in MbooniEast Sub County of Makueni County, is no exception to demand a curriculum which will give preparation on Competency Based curriculum of Education as other parts of Kenya.

2.0 STATEMENT OF THE PROBLEM

The implementation of The Competence Based Curriculum (CBC) at PP1, PP2, Grade 1, 2 and 3 has been done at such a speed that the level of Teacher Preparedness and Readiness, and its effect on Teaching and Learning have not been Systematically Investigated. Teachers were rushed on imparting Technological Skills on Preschool children yet there was no provision of enough and relevant T/L resources to assist the avenue of learning and teaching in Preschools. Management Support on Preschool Teaching and Learning is in want; and lastly the Teachers Attitudes on Teaching and Learning in preschools need to be cultivated through encouragement and not harassment. Due to early interaction with phones, children are more enlightened on technology than adults. This type of learning through interaction of teaching and learning resources is very important. Mwita (2010) has established that the quality of education in most public early childhood learning centers is low. This is due to poor management support by the government; for example, the supply of ECDE grant. In 2011 the Ministry of Education disbursed 0.01 % of its budgetary allocation to ECDE as a community support grant (CSG). In 2013-2014 Budget, the government allocated 0.04% to ECDE as CSG, which is very little compared to importance of the program in the country. (Source: The then Mbooni DEO-(ECD)s Office data).The teachers then adopt theoretical method as a way of teaching and learning activities mainly due to non-availability of adequate teaching and learning resources with relevant Technological skills in the preschools. (Source: Kalawa Zonal Office). This study sought to investigate the influence on the CBC implementation in Preschool Teaching and Learning in Kalawa zone, Makueni County, Kenya.

3.0 RESEARCH OBJECTIVE

The objective sought to establish the influence of technological skills on the implementation of competence based curriculum. Data was collected from ECDE teachers, organized and summarized.

4.0 RESEARCH METHODOLOGY

The study applied mixed methods approaches. According to Creswell (2009), in qualitative approach, the researcher conducted interviews to the participants, ask broad, general questions and collected data consisting largely what the participants would tell. The researcher described and analyzed these words based on the objectives of the study. In this case, data collection was by using interview schedules and observations. At the same time the researcher used collected adequate quantitative approach, (a type of approach in which the researcher decides what to study); asked specific questions data from a large number of participants; he analyzed these numbers using statistics; and then conducted the inquiry in an unbiased and objective manner. Quantitative data was collected using questionnaires.

5.0 FINDINGS

ECDE Teachers' Views on the Influence of Teachers' Technological skills influence Implementation of Competence Based Curriculum

Summary of Test Items	SA %	A %	U %	D %	SD %	Mean	St. Dev.
I use computers to prepare my lesson plans and schemes of work	70.4	12.9	1.3	10.1	5.3	4.287	0.952
I integrate digital videos when teaching my lessons	66.9	13.2	2.4	12.7	4.8	4.074	0.905
I browse the internet to get the latest information about preschool education	80.5	12.4	1.6	3.3	2.2	4.902	1.088
I utilize my cell phone to aid in teaching and learning	67.4	19.7	3.5	5.3	4.1	4.105	0.911
I utilize video camera to take picture to be used in class	69.6	13.8	1.6	10.6	4.4	4.239	0.941
I utilize ICT to teach	61.8	14.5	2.1	15.2	6.4	3.764	0.836
I use interactive stories from the internet	57.9	15.5	1.9	20.3	4.4	3.526	0.783
I utilize television, radio to teach in my class	59.9	11.7	2.7	18.6	7.1	3.648	0.810

The table reveals that majority (70.4%) of the ECDE teachers strongly agreed with the view that they use computers to prepare lesson plans and schemes of work. At the same time, 12.9% agreed. However, only a paltry 1.3% of the ECDE teachers were undecided, 10.1% disagreed whereas 5.3% strongly disagreed. On average, these findings generated a mean of M = 4.287, Std. Deviation = 0.952. The study also revealed that a fair majority (66.9%) of the ECDE teachers strongly agreed with the view that ECDE teachers intergrate digital videos when teaching as did 13.2% of the ECDE teachers. At the same time, 2.4% of the ECDE teachers were undecided, 12.7% disagreed whereas 4.8% strongly disagreed. On average, these findings generated a mean of M = 4.074, Std. Deviation = 0.905.

These findings corroborate the assertions of Schiller (2003) that ECDE teachers' instructional practices such as use of computers for educational purpose and attitude towards computers can influence the integration of a technology. The study also revealed that an impressive majority (80.5%) of the ECDE teachers strongly agreed with the view that teachers browse the internet to enhance reading skills and ECDE learners' acquisition of writing and speaking skills as did 12.4% of the ECDE teachers. However, 1.6% of the ECDE teachers were undecided, 3.3% disagreed whereas 2.2% strongly disagreed. On average, these findings generated a mean of M = 4.902, Std. Deviation = 1.088.

A fair majority (67.4%) of the ECDE teachers strongly agreed with the view that ECDE teachers' use their cellophones to enhance instruction. 19.7% agreed. However, 3.5% of the ECDE teachers were undecided, 5.3% disagreed whereas 4.1% strongly disagreed. On average, these findings generated a mean of M = 4.105, Std. Deviation = 0.911. These findings lend credence the to the findings of a study conducted in Czech Republic in

which Wheeler (2000) found out that teacher practices such as consistence in use of technology influence the integration of ICT in teaching in ECDE centers. These findings were also consistent with the findings of a study conducted in Venezuela in which Tubbs (2013) indicated that ECDE teachers who constantly use technology are more likely to use ICT in their classes than ECDE teachers who do not. These findings affirm the fact that new ECDE teachers who have been exposed to ICT have more experience in using the tool. The study also revealed that a fair majority (69.6%) of the ECDE teachers strongly agreed with the view that ECDE teachers' who utilize video cameras have enhanced ECDE learners' acquisition of literacy skills as did 13.8% of the ECDE teachers. On the other hand, 1.6% of the ECDE teachers were undecided, 10.6% disagreed whereas 4.4% strongly disagreed. On average, these findings generated a mean of M = 4.239, Std. Deviation = 0.941.

The study also revealed that a fair majority (61.8%) of the ECDE teachers strongly agreed with the view that ECDE teachers' utilize ICT to teach as did 14.5% of the ECDE teachers. On the other hand, 2.1% of the ECDE teachers were undecided, 15.2% disagreed whereas 6.4% strongly disagreed. On average, these findings generated a mean of M = 3.764, Std. Deviation = 0.836. These findings corroborate the findings of a study conducted in Lagos State in Nigeria in which Oladosu (2012) asserted that an important additional determinant of ECDE teachers' engagement in the use of new media in classrooms is their confidence in using technology.

ECDE teachers with little confidence in using ICT in their work will try to avoid them. Oladosu (2012) reported that many ECDE centers ECDE teachers who were not using computers were doing so because they lacked confidence with or felt frightened by computers. These findings hence affirm the fact that lack of ICT-competence is clearly a barrier to ECDE teachers' use of new media in classrooms.

In other words, ECDE centers ECDE teachers who have a reasonable amount of technical skill and who use computers to address their own professional needs use computers in broader and more sophisticated ways with ECDE learners than ECDE teachers who have limited technical skills and no personal investment in using computers themselves. Slightly more than half (57.9%) of the ECDE teachers strongly agreed with the view that ECDE teachers' utilize interactive stories from the internet. 15.5% of the ECDE teachers agreed. On the contrary, 1.9% of the ECDE teachers were undecided, 20.3% disagreed whereas 4.4% strongly disagreed. On average, these findings generated a mean of M = 3.526, Std. Deviation = 0.783.

Similarly, more than half (59.9%) of the ECDE teachers strongly agreed with the view that ECDE teachers' use television and radio to enhance ECDE learners' acquisition of literacy skills. 11.7% of the ECDE teachers agreed. On the contrary, 2.7% of the ECDE teachers were undecided, 18.6% disagreed whereas 7.1% strongly disagreed. On average, these findings generated a mean of M = 3.648, Std. Deviation = 0.810. These findings lend credence to the assertions of Tubbs (2013) in Venezuela indicates that ECDE teachers who engage learners using ICT promote rich competences among learners. This is attributed to the fact that ECDE teachers who have been exposed to CBC are more likely to use computers during classroom instruction and therefore have more experience in using the tool.

Thematic Analysis of Qualitative Findings on ECDE Teachers' Technological skills and Implementation of Competence Based Curriculum

Head teachers were also interviewed. The interviewees too indicated that ECDE teachers 'utility of ICT has enhanced ECDE learners' competences such as acquisition of reading, writing and speaking skills. Just like in quantitative data, these views lend credence to the assertions of Schiller (2003) that teacher' practices such as computer utility for educational purpose can influence the integration of a technology. The headteachers were asked if they had the requisite skills to teach CBC and headteacher 1 responded thus:

> "*Teaching ICT experience has enhanced competences such as reading skills and ECDE learners' acquisition of writing and speaking skills as did their teaching competency*".

Another Headteacher 2 responded:

'My teachers have the requisite skills to teach CBC although others seem to have negative attitude towards it'.

while another Headteacher 3 responded negatively by s*aying:*

'Some teachers have skills; others seem not to although they were trained'

On the second question that sought to find out from them how prepared ECDE were prepared to handle different types of digital technologies, one headteacher 4 responded thus:

'Preparedness depends on the types of digital technologies. ' If it's a smartphone and Laptops they are ready to use'.

Headteacher 5 also stated that:

'Most teachers may not be prepared to use projectors, tablets, smart-boards and digital books'

In the same vein, these views lend credence to the findings of a study conducted in Czech Republic in which Wheeler (2000) found out that teacher practices such as teaching experience influence the integration of ICT in teaching in ECDE centers. These views affirm the fact that ECDE teachers who have more ICT exposure and experience are more likely to use computers in their classes than ECDE teachers with less experience. Besides, ECDE teachers who have been exposed to computers during their training and therefore have more experience in using the tool. The interviewees indicted that an important additional determinant of ECDE teachers' engagement in the use of new media in classrooms is their confidence in using technology. This point to the fact that ECDE centers ECDE teachers with little confidence in using ICT in their work will try to avoid using the ICT.

These views further attest to the fact that many ECDE centers ECDE teachers who were not using computers were doing so because they lacked confidence with or felt frightened by computers. In addition, these findings hence affirm the fact that lack of ICT-competence is clearly a barrier to ECDE teachers' use of new media in classrooms. ECDE centers ECDE teachers who have a reasonable amount of technical skill and who use computers to address their own professional needs use computers in broader and more sophisticated ways with ECDE learners than ECDE teachers who have limited technical skills and no personal investment in using computers themselves. The interviewees were also in favor of the fact that ECDE teachers who have fewer years of experience are more likely to use computers in their classes than ECDE teachers with a lot of years of experience.

6.0 CONCLUSIONS

It is evident that ECDE teachers' technological skills influence implementation of CBC in ECDE centers and availability of ICT infrastructure in schools is futile if ECDE teachers lack the knowledge and the skills on how to use these instruments to deliver their subject matter and to engage ECDE learners through ICT. This is indicative of the fact that in many instances, schools need to support in integration of ICT in ECDE centers through acquiring the needed infrastructure is critical.

7.0 RECOMMENDATION FOR PRACTICE

On ECDE teachers' technological skills, the training curriculum for ECDE teachers should incorporate technological aspects so as to enable the ECDE teachers gains both theory and practical skills for use in implementing CBC skills. The stakeholders and school authorities need to be provided with adequate facilities and resources for effective curriculum integration of ICT in public ECDE centers.

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