Use of Technological Resources in the Acquisition of Language Skills in Early Childhood Development and Education Programmes in Gem Sub-County, Kenya

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Abstract
Research findings world over indicates that technology has revolutionized teaching and learning at all levels of education. However, in Gem Sub-County in the Republic of Kenya concerns have been raised with regard to the use of technological resources in the acquisition of language skills. The objective of this article was to establish the use of technological resources in the acquisition of language skills in early childhood development and education programmes in Gem Sub-County. It adopted descriptive survey design. The study involved 68 ECDE teachers drawn from 115 ECDE centers in Gem Sub-County, Kenya selected by purposive and simple random sampling techniques. Data was collected by use of questionnaires and interview schedules. Data was analyzed using the study found that teacher preparedness, availability of technology resources and administrative support had influence on the acquisition of language skills. The study recommends: the incorporation to the training curriculum of technological aspects so that teachers should be trained in selection and use of technology. This would enable the teachers to gain both theory and practical skills; the government and other stakeholders should come up with a programme of supplying technological resources to enhance learning not only of sensitization on the safety measures and also provide safe resources ; the school administrators should be sensitized on their roles in supporting the provision of conducive environments so as to promote the use of technology and finally in-service training for ECDE teachers on the emerging issues with regard to technological resources.
Keywords: Technological Resources, Language, Skills, Early Childhood Education.

Introduction
Definitions of early childhood education differ around the world (Swiniarski *et al.*, 1999). However, the general consensus is that early childhood is the period from birth through age 8 (Essa, 1999; Wortham, 2000; Eville-Lo & Mbugua, 2001; UNICEF, 2002). There is an increased interest in early childhood education around the world which reflects respective people's particular philosophical beliefs about children (Graves *et al.*, 1996). In Kenya, most

parents are interested in Early Childhood Development Education (ECE) services for they believe that these services give a head start for the children's later formal education which is considered extremely important given the highly competitive and examination oriented education system in the country (Koskei, 2008). Early Childhood Development (ECD) is the term used in Kenya to refer to the area of discipline that concerns the care, development and learning of young children of ages 0+-5+ years. ECD is under the responsibility of the Ministry of Education, Science and Technology, and consists of the following major services: Nursery School, Pre-Unit Class, Kindergarten, Day Nursery, Playgroup, Madrassa and Home- Based Care Centre. Early Childhood Development (ECD) is a generic term for various early childhood services provided under the framework of ECD, including those mentioned above (MOEST, 2005). Ramey and Ramey (1998) suggest that there are 'six developmental priming mechanisms' with a potential role to enhance learning; encouragement to explore the environment; mentoring basic intellectual and social skills; celebrating new skills; rehearsing and expanding new skills; protection from appropriate punishment or ridicule for developmental advances; and stimulation in language and symbolic communication.

Use of technological resources in the acquisition of language skills in ecde programmes language is an important tool for the dissemination of knowledge and learning. In kenya, the language policy requires that in lower primary school, mother tongue (Mt) should be used as the language of instruction (LOI) (up to class 3). English and kiswahili are taught as subjects, but from class 4-8, english is adopted as the loi (Republic of Kenya, 1976). In urban areas, however, kiswahili is taken as the mt and is used for instruction in lower classes Ngasike (2011) says that materials from the environment of the child makes him have a lot of pleasure in learning.

Bishop (1985) stresses the importance of resource materials in the implementation of innovations when he says that teachers' ability to implement curriculum change is a function of the availability of tools for the job. There must be ready and continuous supply of resource materials. Okech and Asiachi (1992) contend that it is the kind of resources available that have great implications in what goes on in schools today. Eshiwani (1993) observes that the expenditure on instructional materials per pupil and the management efficiency of material per pupil may boost school achievement. Similarly, Shiundu and Omulando (1992) hold that "a new programme requires relevant and adequate facilities. Even before implementation, physical facilities must be prepared and materials purchased to ensure successful activation of the programme". Resource materials and facilities need not only be available but be in the right quantities (Gross *et al*., 1971). Lack of resource materials and facilities frustrates and demotivates teachers. According to Kocchar (1990), a teacher who has adequate and relevant teaching materials and facilities will be more confident, effective and productive. In the field of education, it is commonly related as how computers and the internet can best be harnessed to improve the efficiency and effectiveness of the process of teaching and learning (Guha, 2003). It can have a transformative effect on education systems because it is a potentially powerful tool for extending educational opportunities and greatly facilitate the acquisition and absorption of knowledge (Conlon & Simpson, 2003) with the usage of computer. It tends to redefine teacher and student roles and beliefs about teaching and learning (Guha, 2003). Experience around the world in developing, industrialized, and information-based countries has shown that for the past three decades the world has witnessed a notable shift in the way media and technology are used in schools (Carlson & Gadio, 2003). As Dale (1969) far back in 1969 classified them into three categories, that is;

audio i.e. Radio, tape recorder; visual media, audio-visual and computer meditated materials. Ellington and Race (1993) classified the teaching and learning resources into seven groups; printed and duplicated materials; non-projected display materials; still-projected display materials: audio materials: linked- audio and still-visual material: video materials and computer- mediated materials.

Teaching in the age of digital learning also has implications for early childhood teacher educators in how they integrate technology tools and interactive media in the on-campus and online courses they teach, how well they prepare future early childhood teachers to use technology and media intentionally and appropriately in the classroom with young children and how well future teachers understand and embrace their role with parents and families(NAEYC, 2009b; Rosen & Jaruszewicz, 2009; Barron et al., 2011). Teacher educators need to provide technology mediated and online learning experiences that are effective, engaging, and empowering and that lead to better outcomes for young children in the classroom. This requires knowledge of how adults learn and of how technology can be used effectively to teach teachers (NAEYC, 2009b; Barronet al., 2011). Current and future early childhood educators also need positive examples of how technology has been selected, used, integrated, and evaluated successfully in early childhood classrooms and programs. To implement the principles and recommended practices contained in this statement, educators need access to resources and online links, videos, and a professional community of practice inwhich promising examples and applications of emerging technologies and new media can be demonstrated, shared, and discussed.

Pearson (1983) points out that media teaching resources should be carefully used and from his research he found out that learners from different cultures reacted differently when faced with different styles of illustrating materials. He goes further to point out that another possibility that quite relate to the way of teaching is that materials will present activities and some bits of the language for the learners to work with, but include nothing that explains anything to the learners. Dulay, Burt and Krashen (1982) say that materials should help learners to develop confidence, 'Relaxed and self-confident learners learn faster'. Using media and technological resources which are stimulating, which are problematic but which can be manipulated such as making them learn to use and to develop their existing extra-linguistic skills i.e. imagination, creativity and analytical. They go further to say that relaxed and comfortable students apparently learn more and so media and technological resources should help learners to feel at ease. This brings up the issue of safety in that some of the resources selected and used may expose learners not only to physical danger but also psychological danger. Muijs and Reynolds (2001) say that the learners should be offered greater flexibility to choose what, how, where and when to learn depending on their unique potentials and needs. They are seen as active persons 'predisposed to change'. The UNESCO (1984) study found out that the mere use of the materials or resources however, does not guarantee effective communication, or effective teaching. It is their careful provision, selection and skilful handling that renders them useful in facilitating learning. Young children live in a world of interactive media. They are growing up at ease with digital devices that are rapidly becoming the tools of the culture at home, at school, at work, and in the community (Kerawalla & Crook, 2002; Calvert et al., 2005; National Institute for Literacy, 2008; Buckleitner, 2009; Lisenbee, 2009; Berson & Berson, 2010; Chiong & Shuler, 2010; Couse and Chen, 2010; Rideout et al., 2011). Technology tools for communication, collaboration, social networking, and user-generated content have transformed mainstream culture. In particular, these tools have transformed how parents and families manage their daily lives and seek out

entertainment, how teachers use materials in the classroom with young children and communicate with parents and families, and how we deliver teacher education and professional development (Rideout et al., 2003; Roberts & Foehr, 2004; Rideout & Hamel, 2006; Rideout, 2007; Foundation for Excellence in Education 2010; Gutnick et al., 2010; Barronet al. 2011; Jackson, 2011a, 2011b; Wahi et al., 2011). The amount of time children spend with technology and media is important (Christakis & Garrison, 2009; Vandewater & Lee, 2009; Tandon et al., 2011), but how children spend time with technology must also be taken into account when determining what is effective and appropriate (Christakis & Garrison, 2009; Tandon et al., 2011). The impact of technology is mediated by teachers' use of the same developmentally appropriate principles and practices that guide theuse of print materials and all other learning tools and content for young children (Van Scoter et al., 2001; Clements and Sarama 2003a; Plowman & Stephen, 2005, 2007). Young children need opportunities to develop the early "technology-handling" skills associated with early digital literacy that are akin to the "book-handling" skills associated with early literacy development (National Institute for Literacy, 2008). The International Society for Technology in Education (2007) recommends basic skills in technology operations and concepts by age 5. Early childhood settings can provide opportunities for exploring digital cameras, audio and video recorders, printers, and other technologies to children who otherwise might not have access to these tools. When educators appropriately integrate technology and interactive media into their classrooms, equity and access are addressed by providing opportunities for all children to participate and learn (Judge et al., 2004; Cross et al., 2009). In such an environment, accommodations are made for children with special needs to use technology independently (Hasselbring & Glaser, 2000), and technology strategies to support dual language learners are in place. Given the nature of the problem under examination, that is, use of technological resources and materials in the acquisition of language skills in early childhood development and education programme, the study targeted the ECDE teachers as they are very important and influential in raising standards whatever the existing situation (Fullan, 2001).

Research Design and Methodology

The study employed a descriptive survey design to gather facts, views, opinions, attitudes and suggestions from educational managers, teachers and parents on the theory, policy, and use of technological resources such as computers in teaching language in early childhood education.

Sample and Study Area

The study was carried out in Gem Sub-County within the Siaya County, Kenya. The Sub-County contains both public and private providers of ECDE curriculum, however the public outnumber the private providers. The study used a non-probability sampling technique to obtain a purposive sample of respondents who were directly involved with the teaching and acquisition of language skills within the preschool settings. Simple random sampling was used in obtaining the preschools to represent the five zones in Gem Sub-County. Names of the specific preschool institutions in the Sub-County were then written on pieces of paper, folded and placed in separate boxes. Four names were randomly picked from each zone bringing the number to 20. Learners, teachers and educational managers within the 20 ECDE centres were then selected using purposive sampling. Some institutions had more than three streams per class level and therefore more than three teachers. The teachers in charge of each class level were then selected to participate directly in the study. A total of 68 teachers and the learners

under their direct care, 5 zone coordinators, 1 Sub-county ECDE coordinator and 1 Sub-county Education Officer participated in the study.

Data Collection Instruments
For data collection, questionnaires, interviews, document analyses and observation schedules were used. Both of them had open-ended and closed-ended items. Open ended questions gathered in-depth information and were used so as to enable the researcher gather data from a large number of respondents at a particular time (Ngumbo, 2006) while closed ended questions gave out structured responses, which facilitated the ease of tabulation and analysis. Triangulation was used in data collection and presentation for authenticity and validity in data analysis.

Pilot Study
To establish reliability of the research instruments, a pilot study was carried out in 5 ecde centers involving 15 teachers (16 % of the study population) using test-retest method. The two tests were administered at an interval of two weeks. This was done so as to find out whether the terms used were understood by the teachers and also to guard against the response set, distortion of data and subjectivity of responses. Teachers who participated in the pilot study were not involved in the final study. This method of establishing reliability of instruments was appropriate for the instruments that gather data which is qualitative in nature (Joppe, 2000; Creswell and Miller, 2000). Teachers who participated in the pilot study were not involved in the final study. For validity of the instrument to be ensured, three experts on the topic examined the content of the instrument and advised the researcher on the content validity. Their feedback was used to revise the instruments.

Data Collection Procedures
The researcher visited the schools to collect relevant data. The instruments were administered through personal visits on appointment with teachers. The questionnaires were filled by the teachers and collected by the researchers after a fortnight. The researchers observed a number of language lessons and held discussions with the respective teachers before and after the lessons and during the collection of the questionnaires.

Data Analysis Procedures
The data obtained was coded considering the interrelatedness of the responses. Emerging patterns were then recorded, classified and interpreted as per the variables of the study. It was then analyzed using descriptive statistics through frequencies and percentages, and presented in tabular form containing the number of responses per item (frequency) and the percentage of each response. The computer SPSS package was used to compute the empirical data which provided the basis for analysis and description of the data collected.

Results and Discussion
Teacher Training in Using Technological Materials and Resources for Language Teaching
This aspect was looked at in terms of knowledge, skills, attitude and preferences on use of technology such as computer applications, training in computer use and time for preparation to use technological resources. These were important factors to be considered in this study. The study sought to find out the extent of influence of the teacher training in using

technological resources for language skills acquisition. Information on the perceived extent of influence of training aspects on use of language materials is presented in Table 1.
The study sought to establish how teachers viewed the following aspects of training and their influence on application of technological resources in language acquisition. The findings are shown in Table 1 below.

Table 1:
Aspects of Teacher Training in Using Technological Resources
The findings above indicate that majority 22(32%) of the respondents indicated that attitude as an aspect of teacher training plays a big role when using technological resources in language acquisition, 20(29%) indicated knowledge acquired during training, 15 (23%) indicated skills and finally a paltry 11 (16%) indicated preference as an aspect which influenced use of technological resources in early childhood development and education language skills acquisition.
The respondents were further asked to rank the aspects of teacher training with regard to their influence in the selection of technological resources to teach the acquisition of language skills in early childhood and education development classes. The findings are shown in table 2 below.

Table 2: Extent of Influence of aspects of Teacher Training in Using Technological Resources

Aspects of Teacher Training	Frequency	Percentage
Knowledge	20	29
Skills	15	23
Attitudes	22	32
Preference	11	16
Total	**68**	**100**

Teacher preparedness	Perceived extent of influence									
	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
Knowledge	33	48.5	25	36.8	3	4.4	5	7.4	2	2.9
Skills	22	32.4	31	45.6	11	16.2	3	4.4	1	1.5
Attitudes	21	30.9	33	48.5	10	14.7	2	2.9	2	2.9
Preference	10	14.7	11	16.2	5	7.4	22	32.4	25	36.8

Key: 1. Very Great Extent 2. Great Extent 3. Fair Extent 4. Minimum Extent 5. No Extent at All
Table 2 reveals that, 33 (48.5%) perceived that technological knowledge had very great influence, followed by 25 (36.8%) for great extent, 5 (7.4%) for minimal influence, 3 (4.4%) for fair extent and a paltry 2 (2.9%) who perceived that technological knowledge had no influence at all on language skills acquisitions. On the technological skills, majority of the respondents 31(45.6%) perceived that it had great influence, followed by 22(32.4%) for very great, 11(16.2%) for fair extent, 3(4.4%) for minimal influence and 1(1.5%) who perceived that technological skills was of no significance in influencing the language skills acquisitions. On the influence of attitudes on technological use in language skills acquisition, 21 (30.9%) indicated very great extent, 33 (48.5%) for great extent, 10 (14.7%), 2 (2.9%) each for

minimum and no extent at all. On the influence of preference in selecting and using technological resources in language skills acquisition, majority 25(36.8%) indicated no extent at all, 22 (32.4%) indicated minimum extent, 11 (16.2%) indicated great extent, 10(14.7%) indicated Very great extent and 5(7.4%) indicated fair extent.

Table 2 reveals that over 85% of the respondents from the centres under study perceived that technological knowledge either had very great extent or great extent, 78% perceived language technological skills to either as having very great extent or great extent while 79.4% perceived attitudes either had to a very great extent or great extent of influence on language skills acquisitions.

Discussion

This study found that teacher preparation in terms of technological skills, knowledge, attitudes towards technological resources and preferences was vital in the use of these resources in language acquisition skills. Data analysis indicate that knowledge and skills in terms of preparation to use technological resources for acquisition of language skills is very vital. Lack of these knowledge and skills for most teachers has made it difficult for teachers to use technological resources in language skills acquisition. These findings seem to concur with what Bloom (2003) found that the more ambitious teachers of the English language normally resort to resourceful fun filled language activities such as jigsaw-puzzle, crossword puzzle, quiz and Newspaper-In-Education (NIE) and they consider the usage of Media and technology as to be the last resort only if photocopies of comprehension passages and grammar exercises were not delivered on time.This finding concurs with those of Drent and Meelissen (2007) who state that Media and Technology should be used as tools to support the educational objectives such as skills for searching and assessing information, cooperation, communication and problem solving which are important for the preparation of children for the knowledge society. In fact, innovative use of Media and Technology can facilitate student centered learning (Drent, 2005).

Teachers must take the time to evaluate and select technology and media for the classroom, carefully observe children's use of the materials to identify opportunities and problems, and then make appropriate adaptations. They must be willing to learn about and become familiar with new technologies as they are introduced and be intentional in the choices they make, including ensuring that content is developmentally appropriate and that it communicates anti-bias messages. When selecting technology and media for children, teachers should not depend on unverifiable claims included in a product's marketing material. In the selection process, program directors and teachers should consider the allocation of limited resources and cost effectiveness, including initial cost, the ongoing costs of updating and upgrading hardware and software, and other non specified costs such as additional items needed to use the product. Other considerations include durability for active use by young children and replacement costs if the device is dropped or damaged. Incentives for children to use the product or buy more products from the vendor should be reviewed and considered carefully.

Conclusions

Based on the findings, the following are the conclusions of the study:

(i)   Teachers' skill was paramount in influencing the use of technological in acquisition of language skills.

(ii)   Teacher knowledge was also found to be important in influencing use of technological resources in acquisition of language skills.

(iii)   Availability of technological resources affected the use of these resources with regard to acquisition of language skills.

(iv)   Safety of these technological resources also had influence on their use thus affecting acquisition of language skills.

(v)   The study concludes that administrative support in acquiring relevant technological resources influenced language acquisition skills.

(vi)   The study concludes that there in-service training in relation to technological resources was paramount in assisting teachers implement language acquisition skills.

Recommendations

Based on the findings and conclusions of the study, the study has the following recommendations;

i)   The training curriculum for ECDE teachers should incorporate technological aspects so as to enable the teachers gains both theory and practical skills for use in implementing the ECDE language curriculum.

ii)   The government and other stakeholders should come up with a programme of supplying the ECDE centers with technological resources and materials so as to enhance learning not only of language but also the other areas.

iii)   There is need to provide sensitize the stakeholders on the safety measures and also provide safe resources and materials for effective ECDE learning.

iv)   There is need to sensitize the school administrators their roles in supporting the provision of conducive environments so as to promote the use of technology in ECDE learning.

v)   The study recommends that in-service training for ECDE teachers on the technological resources, since technology and education have become dynamic.

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