THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN TEACHING AND LEARNING OF PHONICS IN CHILDHOOD EDUCATION

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Abstract

The invaluable contribution of ICT to knowledge acquisition is being exploited by both teachers and learners in diverse fields of education disciplines. This study has investigated the role of ICT in the teaching and learning of phonics in childhood education. The area of the study was Awka Urban. The design of the study was survey. Two research questions guided the study. All the primary school teachers in the area of study constituted the study while 420 were randomly selected as the sample. A 20 item instrument structured on four point rating scale was used for data collection. Mean scores were used to analyse the research questions. Findings revealed that ICT has many roles to play in the teaching and learning of phonics ranging from providing both the teacher and the learner many materials and strategies for drills to providing immediate feedback. Based on the findings, the researchers recommended that government should equip schools with computers and organize workshops and seminars to train teachers on the use of computer for optimal benefit by learners. Parents should also have their children trained to use computer.

Introduction

Reading is a complicated process; it requires competence in several sets of skills including the ability to identify and recognize words; and their sound systems by which we communicate with one another which leads to developing independence in reading (Fox and Hull, 2008). The study of sound systems; the relationships of the letters and their combinations in print to the sounds they represent is called phonics. Phonics and its use in reading and spelling is one set of word attack skills. Venezky (1999) describes the English language as a fundamentally alphabetic writing system. It is not surprising then that researchers: Carr and Posner (1995); Adams (1990) conclude that reading achievement is higher when instructional programs include phonics. Research evidence has shown that phonics when taught systematically, significantly improves the reading ability of children (Baumann, Hoffman, Moon and Duffy-Hester, 1998; Snow, Burns and Griffin, 1998).

Introduction of ICT in teaching and learning has tremendously enhanced the quality of knowledge and skills acquired by learners (Snow, Burns and Griffin, 1998). Several studies have shown positive results of ICT to support phonics instruction with children. Reitsma (1988)

reports improved rate and accuracy of word identification by beginning readers after working with software that offered digitized pronunciation of words. Barker and Torgesen (1995) report a study of first graders who used a software application with speech capabilities. Children in the experimental group out performed their peers in both phonemic awareness and in their consequent ability to identify and read words. When appropriately designed and used, software can have substantial impact on teaching and learning (Grabe and Grabe, 1996). Computer software are programmed with rich drills that if used appropriately can supplement teaching very effectively and may, in fact be convenient tools in helping children achieve proficiency in phonics. Burns, Roe and Ross (1996) corroborate this in their finding which shows that phonics software's not only help children develop fluency and accuracy in word identification but also enable them develop their understanding of word play (combination and segmentation) into recognizable components visually or audibly. Software with visual highlighting and synthesized speech improve children abilities to blend words after learning them segmented at the onset-rime (ie. first sound rest of word) level. This software also enhances whole words and syllable recognition among children. Children with reading difficulties may also have much to gain from software designed to drill phonics (Olson, Wise, Ring and Johnson; 1997). Drill phonics software also helps children to learn words that are unfamiliar to them (Roth and Beck, 1987). Computer also trains children to sit still, paying attention to their learning. Use of ICT in teaching and learning of phonics avails diverse materials/strategies for the teacher and the child. ICT innovation is part of the quest to enhance teaching and learning for better learning out-comes in a globalized word such as ours. The effectiveness of teaching and learning of the child in a contemporary world therefore, depends to a large extent on the use of ICT (UNESCO, 2002). The role ICT plays in childhood education is critical to equipping the child strongly to face the challenges of future learning tasks in their complexities. The ICT role is of special need in the teaching and learning of phonics because without solid foundation in phonics; reading and spelling difficulties might emerge and adversely affect the child's education career. The purpose of this study therefore is to find out the role ICT plays in the teaching and learning of phonics in childhood education.

Research questions

The following research questions guided the study

(i) What are the roles of ICT in teaching phonics in childhood education?

(ii) How can ICT facilitate learning of phonics for children?

Methods

The design of this study was survey. The area of the study was Awka Urban. All the primary school teachers constituted the population. A sample of 420 teachers was randomly selected. Two research questions guided the study. A 20 item researchers- developed instruments, which were duly validated and reliably tested which yielded 0.79 and 0.88 coefficient values were used for data collection. The instruments were structured on four point rating scale of Strongly Agree (SA, 4 points), Agree (A, 3 points), Disagree (D, 2 points) and strongly Disagree (SD, 1point). Part A sought demographic data, part B sought role of ICT in teaching phonics while part C sought the role of ICT in learning phonics. The instrument is titled the Role of ICT in Teaching and Learning of Phonics (RICTTLP). Mean scores were used to answer the research questions. Mean 2.50 and above were accepted while below 2.50 were rejected.

Results

The results were presented in the order of research questions.

Research Question One

Table 1: Teachers' mean responses on the role of ICT in teaching phonics

S/N	Item	$\overline{X}$	Decision
1.	ICT provides tasks that involve matching sounds and letters	2.60	Accepted
2.	It provides tasks that involve matching spoken and written words	2.58	Accepted
3.	It provides tasks that involve combining letters to form words	2.55	Accepted
4.	It provides individual problem pairs of words to be arranged	2.63	Accepted
5.	It presents stories to focus on the letter sound correspondences	2.70	Accepted
6.	It provides words that the child has not mastered	2.50	Accepted
7.	It helps teacher meet the individual needs of children	2.54	Accepted
8.	It provides as many repetitions of task as possible	2.58	Accepted
9.	It provides reports for teachers	2.52	Accepted
10.	It provides immediate feedback	2.61	Accepted

Table 1 above shows that teachers accepted all the 10 items as the role of ICT in teaching phonics. They all scored 2.50 and above.

Research Question Two

Table 2: Teachers' mean responses on the role of ICT in learning phonics

S/N	Item	$\overline{X}$	Decision
1.	ICT provides game contexts	2.76	Accepted
2.	It provides attractive visual presentations	2.81	Accepted
3.	Provides texts for children to read with scaffolds to support phonic skills	2.69	Accepted
4.	Engages children in self-directed work on phonics	2.56	Accepted
5.	Provides reports on children's progress and areas in which individual children need additional work	2.88	Accepted
6.	It holds children's interest	2.89	Accepted
7.	It provides feedback	2.61	Accepted
8.	It gives hints or cue on how to carry out task	2.58	Accepted
9.	It provides motivating speech	2.53	Accepted
10.	It alters the speed of speech to meet individual needs	2.64	Accepted

Table 2 above shows that teachers accepted all the items as the role of ICT in learning phonics. They all scored 2.50 and above.

Discussion

The result of research question one shows that teachers accepted that ICT has roles to play in the teaching and learning of phonics. This finding corroborates the findings of Reitsma (1988) and Barker and Torgesen (1995) which showed positive results of ICT to support phonics instruction with children. It is interesting that teachers are aware of the role of ICT in teaching phonics to children. ICT has many benefits to offer in teaching phonics in childhood education ranging from providing tasks that involve matching sounds and letters, matching spoken and written words, combining letters to form words, providing individual problem pairs of words to be arranged, presenting stories to focus on the letter sound correspondences, providing words that the child has not mastered, helping the teacher to meet the individual needs of children, providing as many repetitions of task as possible, providing reports for teachers to providing immediate feedback. ICT software facilitate teaching as well as learning. It enriches teaching, shifting it away from the traditional/conventional classroom practices to

methods that make learning experiential, assist children discover learning, offer gaming simulation and personalize remediation of some difficulties in learning.

The result of research question two shows that teachers accepted that ICT has roles it plays in learning phonics. This finding corroborates the report of Olson, Wise, Ring and Johnson (1997) which shows that ICT software facilitate learning of phonics through drills even with children experiencing reading difficulties. Roth and Beck (1987) report that ICT software aid children to learn even unfamiliar words. The ICT software designed to assist children in phonics offer many opportunities that diversify learning for the child; making it very interesting and qualitative. The child as a result is enabled to meet and solve multiple learning tasks that aid consolidation of knowledge which comprises decoding of individual letter sound, letter identification, combining letters to form words and ability to read effectively. Since solid foundation in phonics is critical to literacy development of the child, it becomes very necessary that all available ICT software in phonics be employed. It would not only facilitate teaching and learning of phonics; but also, provide opportunities for the child to interact with many learning activities which would consolidate reading and spelling skills for the child.

Conclusion

In this age of information explosion availed by the introduction of technology in teaching and learning, it is very pertinent that ICT experience bears on our educational system. The benefits of using ICT in teaching and learning of phonics cannot be over emphasized. It is therefore necessary to expose children to benefit maximally from innovation such as information and communication technology.

Recommendations

(i) The government should integrate ICT in the education system of childhood education i.e. primary school curriculum.

(ii) Teachers and learners who are not computer literate should be encouraged to become computer literate. This could be done by organizing workshops and seminars where teachers could be trained.

(iii) Parents should arrange and have their children trained in the use of computer because possession of rich fundamental knowledge would boost children's education career.

(iv) Schools should be equipped with computers by the government. Software programmes with rich phonic drills on consonants and vowel sounds, visual highlighting, synthesized speech and word segmentation should be installed in these computers. Installation of these software in the computers would meaningfully engage both teachers and children in the learning process for better outcome. This would help teachers and children have unlimited access to use of computers.

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