IMPACT OF TECHNOLOGY ON PRESCHOOL CHILDREN IN EARLY CHILDHOOD EDUCATION

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Abstract

This study was designed to explore the impact of technology on preschool children in early childhood education. The concepts of technology and early childhood education were meaningfully explained. Equity in technology was highlighted together with moral ethnics in the use of technology. The role of preschool teachers in the use of technology and the problems militating against the child's opportunity to used technology were examined. The impacts of technology on preschool children were discussed. Conclusion and recommendations were also made.

The purpose for the establishment of Early Childhood Education in Nigeria is to develop the total child mentally, socially, emotionally and physically and to prepare him for primary level of education. Akinola (2004) asserted that as it is the first educational services provided for young children from birth, it is expected to expose the child to a variety of learning materials/experiences that will equip him for future learning. Supporting the above, Wardle (1999) explained that the programme was not only designed to meet the developmental needs of the child but also to enable him function effectively in any environment he may find himself so that he becomes more productive, self-fulfilling and attain self actualization at the later life. For the acquisition of literacy skills for proper development, Morrision (2007) opined that among the subjects the child is exposed to, the major subject that can promote quality education and offer children the opportunity to acquire technology literacy is technology for the early years.

Realizing the usefulness of technology in our society, many private and government preschools are making serious effort to increase technology skills among pupils in their various schools because it is a vital tool that can change the face and structure of education as well as status of the child in all ramifications. In order to achieve their mandate objectives, they introduced computer and other digital devices for the teaching and learning process so as to assist the child become technology literate at an early time. Technology literacy is the ability to understand and apply technology devices to meet personal goal. Manabete (2002) supported the introduction of technology in early childhood curriculum, saying that it is imperative because the preschool education is expected to produce children who will be technologically competent in future.

Concept of Technology

The word technology is derived from the Greek word "Technic" which means art or skills and 'logia' which means science or study. Sharam and Sharam (2006) defined technology as a means, process; ideas based on scientific principles in addition to tools and machines for making and doing things thereby solving the problems of mankind. Oxford Advanced Learners Dictionary (2000) defined technology as an organized and scientific knowledge used to solve practical problems. Kranzbery and Pursell (2007) defined technology as the systematic use of all technical knowledge, methods and operations in the control of nature. Technology can also be explained as the

systematic study of techniques for making and doing things. Marrison (2007) explained technology as the application of tools and information to make things and solve various problems. The history of technology is as old as the history of man and as man is distinct from other living creatures, he has always been methodical in doing things.

Technology is an exciting tool that helps children acquire literacy skills. It plays a vital role in changing man's activities as well as his environment. Eyibe (2004) posited that the wireless revolution and the internet events are not only changing the way we live our lives in developing nations, but also shaping the manner in which we transact business and pursue education in the school setting. He added that one of the advantages of technology is that it contributes immensely towards improving education, developing business and creating jobs. This is to say that the use of technology has taken the center stage in the world and will continue to do so even in the future. Sivin-Kachala (1999) postulated that technology never exists in isolation that it always exists in someone's mind. Technology is a tool through which children learn of their environment/world. It has helped to reduce poverty, improved quality of life, enhanced opportunities for better education, health care and more. Kaspaz (1980) defined technology as 'Rules' of efficient action". According to Kranzberg (2007) technology is the application of science to the practical aims of human life. It is a means by which human beings control or modify their natural environment. In order words, technology is the result of knowledge produced by science as man uses science to solve problems for the good of society. Technology education is commonly found to be synonymous with technical education (Towe, 1994). National Policy on Education (1981) defined technical education as that aspect of education which leads to the acquisition of practical and applied skills well as basic scientific

knowledge in the solution of technical problems. Technology education according to Nwaokolo (1997) involves the learning of the practice of any or all the applied sciences that have practical value and or industrial use. Towe (1994) asserted that programmes in technology education are supposed to equip learners not only for today's world but also for that of tomorrow. Children who have benefited from a complete programme of technology education are expected to have attained a level of emancipation in which their intellectual and mental repertory will include sufficient knowledge and skills required for the production of work. In the words of Okeke (2005) technology can be used in the home, school, hospital, industries etc. for the maintenance of life. It can be used by adults and young children (both normal and children with special needs). Assistive technology is specially designed for children with disabilities to assist them in their daily activities. Morrison (2007) explained assistive technology as "any item, device or piece of equipment or product/system that is used to increase, maintain or improve functional abilities of individuals with disabilities. He added that assistive technology is particularly important for children with disabilities who depend on technology for survival as it helps them communicate, learn and be mobile. Technology is a basic tool for progress in any society or community. Any society or school that wants to make headway in any area of development must not loose sight of it. On this note preschool children need technological thinking at the early years to promptly attend to their problems.

Equity in Technology

Morrison (2007) refers to quality as non-discriminatory access for children regardless of their sex, ethnic groups, socio-economic status, geographical location among

others. Technology is the new tool that is changing the face and structure of education by changing the way teachers teach and way learners learn. Computer is the best educative tool used in educating young children as it promotes learning and assists children participate effectively in class activities. Therefore, as Sivin-Kachala (1998) put it for learners to become technologically literate, all the learners irrespective of their sex, religion, ethnic group must have equitable access to technology that is appropriate to them. Equity in technology simply means the provision of equal opportunity to all young children to become technologically literate. In early childhood education, every child needs to have technology experiences for proper development. Children who do not have access to or do not know how to use computers and technology should be exposed to the use of technology to enable them acquire the knowledge and skills for life maintenance. Morrison (2007) pointed out that no bias or any form of discrimination in the use of technology among children should be practiced. On this note, children who are technology literate must not be separated from those who are not or organize a separate programme for them. This is a discriminatory act and must not be allowed to exist. Although, all children must not spend the same amount of time on computer, some children may need more or less time to master the subject. Children who cannot cope fast with others should be given more time and attention to master the objectives of the subject. Adamu (2001) suggested that learners with unequal computer skills can be grouped together and taught in one classroom so as to increase their applications. He pointed out that parents, teachers and policy makers must ensure that there are no technology gap among children and that all software tools should be free of bias. All professionals must consider the needs of the society when selecting materials including computer software and other technological applications for children. These materials must suit the children's age, abilities and ethnic backgrounds and must not be for any gender, culture or socio-economic class.

Moral Ethics in the use of Technology.

Silvere (2009) defined moral as a word used to describe the attitude of a person pursing defined task. Moral issues or moral ethics are regarded as a legal issue or law that guides the use of technology. According to Morrison (2007) these terms define, specify and categorise the kind of behaviour expected of the users of technology. He added that every technology has its own moral ethics which are developed by selected computer experts to guide the use of their products. The moral ethics are expected to be observed and respected by all users.

In early childhood education, once children are exposed to computer and other technology devices, they need to know the moral ethics that guide the use of computer at the information age. Kranzbery et al (2007) described information age as the age/period a child develops his behavior which he will have as he grows into adult. Children need to be prepared by giving them moral training at the information age concerning the laws governing behaviour especially to the use of technologies. This is the age/period to teach them to develop the ability to engage in moral reasoning and to have moral motivation and self control. Morrison (2007) enumerated some of the moral ethics as follows:-
- Visit and use technology house at the appropriate time.
- Handle devices with care and respect all properties.
- Listen and follow instructions before using any of the devices.
- Be honest and avoid all kinds of pilferage.
- Respect the environment and ensure that it is neat and clean.

- Distractions of any kind are discouraged.
- Respect others and maintain discipline.
- Irresponsible speech, false words or abusive language that may cause harm to somebody should be avoided.
- Respect yourself and avoid things that can cause injury to self.

The Role of Preschool Teachers in the Use of Technology-Computer

According to Haugland (2000) technology is a magic bullet for education. Computer is one of the technology tools of learning in early childhood programme. Computer is an electronic device that accepts raw data, process, store it and bring it out as information or output.

Haugland (2000) asserted that computer in early childhood programmes meet many of their developmental needs in the classroom especially in exploration, manipulation of symbolic representation and learning styles. Therefore, for computer to meet the same high standards of all the equipment, materials and resources used by young children, Haugland (2000) designed five components as roles for teachers which include:

❖ **Computer Placement:** This has to do with when and how to use computers in the classroom. This decision has to be taken by the teacher. Researcher has shown that when computers are sectioned in a quiet isolated location, children do not gain much as they should when computers are kept in an open place. Again, computer should be used regularly not often so that children do not view it as intimating, different or special, rather than one of the many resources they can use to learn about the world. Therefore the computer teacher is to select a central location, and position the computers and ensure that the monitors are visible in the classroom. Monitor children as they interact while using computer. This interaction encourages children to learn from each other.

Provide opportunities for peer teaching and support language development because children value peer interaction while using computer.

❖ **Software Selection:** The teacher has to decide on what software to select. The software children use determines to a large extent whether computer experiences are appropriate or not. When children use suitable software, they gather lots of knowledge than when they use unsuitable software. Unsuitable software has a detrimental effect on children's creative abilities.

❖ **Teacher Interaction:** Teachers play essential roles when computers are used successfully with young children. Firstly introduce children to the computers in their classroom, give them adequate direction that would help them start well and have computer experiences. Without proper direction and support, children may never approach the computer. Children should be encouraged to use the computer but never be forced to do so. Instructions can be giving to them individually or in groups. When working with young children ensure that all participate effectively in the training exercise. Later in life, children will need less assistance in using the computer and see it as a useful tool.

❖ **Supporting Activities:** Activities in the classroom provide important support to computer experiences. Teachers can use two avenues to achieve this goal. Firstly involve two activities every day that support the computer software into their lesson plans. The other approach is selecting software which reinforces them. The teacher selects software that integrates with the content already planned for the classroom.

Teacher Training and Support: For teachers to use computer effectively with young children, they have to go for training. Regular and full-time training is better than part-time training because part-time training may be time consuming and frustrating. Teachers should go

for workshops, seminars and on site training in order to update their knowledge. Networking with other teachers and early childhood educators may provide valuable support. Teachers should create opportunity to share their discoveries, ideas and feeling with one another.

Impacts of Technology on Children

Technology has a tremendous impact on children's lives. Okeke (2005) posited that technology helps children to discover things by themselves. It quickly changes the learning modalities that individual pupils can control and pace to meet individual needs. The use of computer in teaching and learning makes active learners busily manipulating a wide variety of objects and help in the process of learning about themselves and their environment. Computer is the best educative tool used in educating young children as it promotes learning and assists children participate effectively in class activities. According to Haugland (2000) computer in early childhood programme meets of their developmental needs in the classroom especially in exploration, manipulation of symbolic representation and matching learning styles.

Software can be used to create books, photos of children and the community can be taken with digital cameras, then pictures can be used to create journals, biographies, wall newspapers, school/home communications etc. old children can use scanners, font selection and various graphics applications to develop power points presentation to show the rest of the class and parents gathering. Technology has been in the area of reducing work load, increase communication problems etc. with the use of technology children can learn various concepts and other things fast as it makes learning easy, interesting and simple. Technology has changed the way instructions/teaching is being utilized by children. It enables children conduct their daily life. Technology is used to solve both academic and personal problems of children as well as meeting their developmental and survival needs. It is a vital tool used to transfer knowledge from the teacher to pupils.

Okeke (2005) posited that technology improves the life of children in the rural areas by the use of modern technology like mechanical devices. It reduces the physical burden which children in the rural areas experience in their daily struggle to survive. It can improve children's activities in rural areas and solve their many problems. Technology increases academic skills reduces the rate of dropout of children in the school and eliminates discrimination in academic performance. It makes the work and lives of children easier by helping them to acquire new skills for increased productivity. It reduces the work load of children and makes communication easier and assists children to acquire early literacy skills. With the use of digital microphones, children can learn in a large class and actively participate in class activities. As Morrison (2007) put it "children of today are technology oriented, hence they are called the dot.com generation. They use technology in different ways in the homes, shops, schools etc in carrying out various activities of learning such as note-taking, doing assignment, browsing for information and meeting their other personal goals.

Conclusion

Technology is a welcome programme for young children which when properly organized and managed will benefit all and sundry. But this can only be meaningful and achieve if and only when the preschool teachers do their work effectively by exposing, encouraging, directing and involving children fully into the use of computers. Through this way, children will gain knowledge, acquire literacy skills at their early years and finally become technology literate and capable of

solving their academic and personal problems independently.

Recommendations

In order for preschool teachers to make effective use of technology:-

- The school authority should provide all preschool teachers with lap top computer.
- Provide steady electrical power supply.
- The teachers should have the ability to plan and organize activities including repairs
- Ensure that all children are given equal attention, maximum help and cooperation while using computers irrespective of their background.
- Preschool teachers should have the ability to inculcate in children the moral ethics required in the use of technology by serving as models to them.
- Computers are to be kept in an open place in the classroom and be used regularly so that children do not see them as something too special.
- Preschool teachers should endeavor to select computers that are suitable to the age of children to enable them gather knowledge and skills.

References

Adamu, A.U. (2001). Teaching and Learning using Computer Assisted Instruction (CAI) in the science class. A paper presented at NCCE/UNESCO workshop for train the trainer's workshop Federal College of Education, Yola 5th -10th November 2001.

Bates, A.W. (1995). *Technology open learning and distance education.* London: Routledge.

Elkind, D. (1998). Computer for infants and young children. *Childcare information Exchange* 123,44-46.

Erikson, E. (1963). *Childhood and Society*. New York. Norton

Eyibe, S.C. (2000). *Investigation in philosophy of Education*, Owerri Cape Publishers International.

Eyibe, S.C. (2004). *Education and Information technology at work*: Umunze Annyco publishers.

Haugland, S.W. (1997). *The developmental scale of software*, Cape Giradeau, mo:K.I.S and computers.

Haugland, S.W. (2000). What role should technology play in young children's learning? Young children, 54 (19) 26-30.

Kadurumba, C.U.U. (2010). *Early Childhood Education in Nigeria.* Umuahaia: Atlas publishers.

Kaspazy, S. (1980). The background of a Technology Society. Technology and Society. Interfaces with Industrial Arts.

Kranzberg, M. & Pursed, C.W (2007). *Technology in Western Civilization*. New York, Oxford University Press.

Madu, E.C. & Marie, D.B. (2002). *Information Science and Technology for Library Schools in African:* Ibadan Evi-Coleman Publishers.

Manabete, S.S. (2002). Technology Education for sustainable development. Text of paper at Natural Conference, School of Sciences, C.O.E Jalingo from 29th October.

Morrison, G.S. (2007). *Early Childhood Education Today.* Columous, Ohio Dannelley & Sons Company.

Nwaokolo, P.O. (1997). Entrepreneurship in Technology Education in Africa: A panacea to youth unemployment. *Journal of Technical Teacher Education.* 2 (1) 57-67.

Okeke, A.N. (2005). *The impacts of technology on traditional life in Nigeria.* Enugu. Forth Dimension Publishers.

Silvere, S. (2009) *Technology transfer. A realistic approach*, Houston. Gulf Publishing Co.

Sivin-Kachala, J.(1998). *Report on the Effectiveness of Technology in School 1990-1999*. New Delhi, Software Publishers Association.

Towe, P.E.O (1994). Evaluation of Technology Education. A paper presented at 7th National Conference of the Nigerian Association of Teachers of Technology (NATT), Federal Polytechnic Offa 22-24.

Wardle, F. (1999). How children learn. *Foundations for learning children and families*, 13 (3), 66.

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