MODELS OF TEACHER PREPARATION FOR TECHNOLOGY INTEGRATION AND ASSOCIATION CHALLENGES IN EDUCATION IN NIGERIA

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Abstract

This paper discusses the importance of information and communication technologies in teacher training with due regard given to ICTs integration in teacher education. Issues of ICTs inclusion in teacher education, access and relevance of ICTs integration into teacher education in Nigeria were focused upon. Consequent upon preparatory teacher integration into ICTs are fundamental challenges inherent in the Nigeria educational system have been duly highlighted.

Introduction

The importance of teachers in the success of any educational programme cannot be overemphasized. To a great extent, the bulk of the work of implementing any curriculum rest on the teachers. This is why it is of utmost importance to ensure the quality and quantity of teachers that are produced through the various agencies that are saddled with the responsibilities. If teachers are to successfully facilitate the learning process to being about the desired result, the quality of what the teacher is made of should be guaranteed.

To improve the quality of teachers in terms of ICT applications, some of the focus action should include developing appropriate guideline on curriculum framework and standard of ICT infusion by teachers, designing terms plates of ICT-integrated e-lesson plans and evaluation tools for teachers to asses their students learning using ICTs and creating an on-line network of teachers centres to hare innovative practices. The above actions will enable teachers' functions in the integration of ICTs in the classroom and include: strengthen ICT use in school. The fallouts will use of ICT to improve the quality of education for all and to better prepare youth for the demands of the knowledge society; ICT based teaching/learning lessons and materials for integration into the teaching of science, Mathematics and language; exchange of experiences and best practices from the use of ICTs as well as empowering non-formal learning/education programmes for meeting non-mainstream adult and community needs with respect to improve the quality of life and poverty alleviation among disadvantaged rural populations through greater access to context-specific education programmes using ICTs.

Regardless of the potentials of ICTs, only resourceful and competent teachers can exploit the potentials. Accordingly, Kirschner and Davis (2003) identified two major frameworks for ICT use in education. These are as core of complementary or complementing technology. Core technologies framework refers to the principal way of organizing the learning experience. Under this framework, ICTs is the components around which all other components of the school learning are planned. On the other hand, as complementary technologies, they are seen as optional serving a valuable function but also to be compensated for via core technology if so needed or dropped all together (Hughes, 2004).

With the benefits which will accrue to the schools, there is need to develop the knowledge and skills of pre-service and serving teachers in the use of ICTs, so that they can use ICTs and integrate them in their instructions. With the introduction of the nine (9) years Basic Education Programme that has made junior secondary schools to be an extension of the primary school, there is need to reorganize training curriculum for would-be teachers to effectively integrate ICTs. In addition,

ICT integration will help enhance the quality of social studies education in Nigeria when implemented consciously.

Information and Communication Technologies and Teacher Education

Practicing and trainee teachers need professional development programmes for successful application of ICTs within the school system. In addition, teachers ability and willingness to integrate ICTs into their teaching ill largely be dependent on the professional training and development which they receive (Selinger and Austin, 2003).

The International Society for Technology in Education ISTE (2003) outlined three basic principles of ICTs in teacher education. These include infusion of ICTs into the entire teacher's education programme, ICTs should be introduced in context and that students should be made to experience innovative technology-support learning environment in their teacher education programme. According to Kirschner and Davis (2003) good practice for both pre-service and in-service programme for teacher training in ICTs include the following; that teacher become sufficiently competent to make personal use of ICTs, competent to make use of ICT as mind stool; become master of a range of educational paradigms that make use of ICT, sufficiently competent to make use of ICT as a tool for teaching; and understand the policy dimension of the use of ICT for teaching and learning.

Furthermore, International Society for Technology in Education ISTE (2003) noted that educational computing and technology is an emerging field and that entirely, the field covers knowledge and skills about the use of computer and related technologies in delivery, development, prescription and assessment of instruction, effective use of computers as an aid to problem solving, school and classroom management, educational research, electronic information access and exchange, personal and professional productivity, and computer science education.

In the same vein, four major levels of training have been identified for teachers; these are educational computing and technology literacy endorsement, the secondary computer science education initial degree programme and the advanced educational computing and technology leadership programme.

ICTs and Nigeria Teacher Education

The importance of teacher education is demonstrated in the goals of Nigeria teacher education as enunciated in the National Policy on Education (FRN, 2004). The goals are to:

a.   produce highly motivated conscientious and efficient classroom teachers for all levels of our education system.
b.   encourage further the spirit of enquiring and creativity in teachers.
c.   help teachers to fit into social life of the community and the society at large and enhance their commitment to the goals.
d.   provide teachers with intellectual and professional background adequate for their assignment and make them adaptable changing situations, and
e.   enhance teacher's commitment to the teaching profession.

While the inclusion of ICT in Nigeria teacher education is laudable, it should be noted, however, that the inclusion is at best superficial when examined from the global perspective. The courses are still inadequate for trainee teachers to model good use of ICTs in education. What is available presently are at best, rudiments of basic knowledge and skill needed to a teacher in contemporary knowledge age. Courses should not be aimed at making trainee literate in using the computer but they should be fluent in the use of an integration of ICTs in their instruction.

ICTs use and integration in teaching is dependent on access. Based on this consideration, it is therefore important that ICTs facilitate and equipment should be provided in teacher-training institutions. Secondary schools should also be equipped to that trainee-teacher are provided with technology-rich environmental during their teaching practice. School authorities, local education authorities and state administration should develop technology planning for the development of quality teachers.

Models of Integration into ICT

Teachers' competency development in ICTs integration has various models. These models embrace the necessary stages of orientation, adoption, evaluation, innovation and institutional (Watson, 2001). Similarly, he identified the following approaches to in-service training of teachers which are the home grown experts, the comfortable shoe's approach, let them struggle, and the killer application. Home grown experts developed competences personally. This reduces money to be spent on training of teachers. The comfortable shoe's approach involves a lot of demonstration to students which are later replicated by students. Then let them struggle approach involves students being shown samples with the teacher stepping back, to let them struggle to master the skill, while 'killer' application involves some curriculum application which the use of ICT is compelling that teachers cannot help but be excited by it or at least compelled by it.

Three major models have been identified for preparing pre-service teachers to teach in a technology-rich environment. These are; single-course model integrated model and combined model (Frederickson, 1999). In the single course model, teacher training institutions teacher technology using an isolated course method. Integrated models involves students being introduced into technology through integration of ICTs in various courses that is, ICTs are integrated across curriculum.

Problem Associated with Effective Integration of ICTs in Nigeria Teachers Education

Providing quality ICTs knowledge and skills for trainee teachers is fraught with numerous challenges. Some of these include lack of technically experienced lecturers, limited ICTs facilitate and infrastructure, inadequate course content for ICTs training back of clear direction in the Nigerian National Policy for Information Technology (NNPIT) on teacher education, lack of leadership by professional organization, and problem of electricity (Adewole and Modasini, 2005).

Most teachers in Nigerian Universities, Colleges of Education and Polytechnics do not have competency in the use of integration of ICTs in their instruction. Limited ICTs facilitates and inadequate course content for ICTs hinged on the non-availability of funds and a stereotyped form of curriculum are among the critical setbacks faced by ICT application in teacher Education programme. Other setbacks include Lack of leadership skills or techniques, problem of electricity and lack of access to ICTs in trainee teacher's field experience are obvious hindrance.

Conclusion

There is a global paradigm shift in ICTs knowledge and application. The essential nature of teacher training institutions, training teachers in ICTs knowledge and skills and appropriate pedagogical approaches is relatively understood as discussed. The urgent need for curricular reforms with respect to the introduction of more single courses complemented by integration of ICTs in all is well explained.

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