Interventions in Bridging the ICT Gaps in Music Teacher Education in the 21st Century: The Need to Include Music ICT Training Into the Music Curriculum

By

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Abstract

Currently we are in a world where Information and Communications Technology (ICT) has made it possible to connect people around the world and made the world a global village. Information Communication Technology has enriched various fields of studies and made teaching and learning more easily accomplished. In the same vein, ICTs has booster the production and promotion of the music industry in so many ways, its importance in the field of musical arts cannot be over emphasized. Be that as it may, the recipients of music teacher education programme cannot optimize the gains of ICT related music packages if they are not opportune to be beneficiaries. How can these students be beneficiaries if they are not opportune to learn? Then, why not introduce ICTs music related packages into the music teacher education curriculum for efficient study and outcome most especially in this entrepreneurial age? To achieve the objective of this paper, materials relating to the subject matter was perused and inference drawn. The paper advocated that music ICTs packages should be included in the music teacher education curriculum in order to prepare music students for future economic contributions in any society they find themselves.

Key Words: ICT, Music Teacher Education, Music ICT Training

Introduction

According to BBC Dictionary intervention is an attempt to change something by becoming involved in it (p. 611). Bridging the gap on the other hand means to connect things in a logical way; to have qualities of two different things; to fill in a space between two things (source: internet). It also means to remedy a deficiency. www.collinsdictionary.com In other words, bridging the gap means to overcome a difficulty, to proffer probable solution to a problem, a deficiency in a system. According to an internet source, Information and communications technology (ICT) is an extensional term for information technology (IT) that stresses the role of unified communications and the integration of telecommunications

(telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage, and audiovisual systems, that enable users to access, store, transmit and manipulate information. The term ICT is also used to refer to the convergence of audiovisual and telephone networks with computer networks through a single cabling or link system. www.en.m.wikipedia.org/

Information and Communication Technologies (ICTs), New Information and Communication Technologies (NICTs) or New Communication Technologies (NCTs) as they are variously referred to, are simply communication gadgets, hardware, equi9pment or facilities that have modernized, improved and eased exchange of ideas and information of various kinds between and among people within or across distant boundaries or frontiers. ICT is the product of the convergence of digital technology encompassing computers, telecommunications, audio-video and publishing. It covers mobile phones, personal computers, and the internet, email, imaging technology, digital broadcast and even cable television. ICT type ranges from web-enabled, network and stand-alone technology. www.ccsenet.org/jsd Information Communication Technology (ICT) according to Iwu (2006:340) is an umbrella term that includes any communication device or application encompassing radio, television, cellular, phones, computer, network, hardware, software, electronic mail, facsimile, satellite systems as well as the various services and applications associated with them. This includes but not limited to video conferencing, distance learning, Internet technologies, audio conferencing and multi-media utilization. Ngumah & Anulobi (2009:31-32) observed that, the advent of ICT (Information Communication Technology) especially in these modern times has brought about effective and efficient information generation, utilization and dissemination, storage and retrieval. ICT include among others; Television, radio broadcasting, audio broadcasting, audio cassettes and cassette recorders, video cassettes recorders, computers, satellite, communication, telephone (short message service, SMS), teleconferencing, video conference, distant learning, computer networks or internet services, hardware, software, satellite systems, multimedia approaches, audiovisual utilization as well as various services and applications associated with them.

Importance and Benefits of ICT in Music Education

Using ICTs in music instruction help to supply a concrete basis for concept thinking and reduces meaningless word responses of pupils. ICT make learning easier and permanent. They offer reality of experience which stimulates self. The use of ICTs has improved the quality of music. Music can be stored and transmitted in ICT devices such as audio cassettes, video cassettes, mp3, tape and video recorders, u-tub. Music can be viewed from the television and heard from the radio, music can be stored in the computer hardware, and software created for music training and composition. Ngumah and Anulobi (2009:22-

24) outlined the following uses of ICT device in music training. They noted that through the following ICTs or delivery modes music teacher education can be effectively delivered to students.

1. Print – Print is a fundamental element of education programmes and the basis from which all other delivery systems have evolved. Therefore, various print formats available for teaching music education include textbooks, study guides, workbooks, course syllabus and case studies.

2. Data – Computer facilitates interaction and independence in music education. Computers send and receive information electronically, for this reason, the term 'data' is used to describe the broad category of instructional tools. Computer applications for music education are varied and include Computer Assisted Instruction (CAI) which used the computer as a self contained teaching machine to present individual lessons, Computer-Managed Instruction (CMI) which uses the computer to organize instruction and track student records and progress and Computer-Mediated Education (CME) which describes computer application that facilitates the delivery of instruction in music. Examples include electronic mail, fax, computer conferencing, and World Wide Web applications.

3. Video – Video compact disc/Videotaped lessons on music can easily be integrated with other media to present a specified content. They can be used in demonstrating complex processes and skills in music, magnifying objects for colour observation, stimulating situations that would otherwise not be available to students. Instructional video tools include still images such as slides, pre-produced moving images (for example film, videotape), and real-time moving images combined with video conferencing.

4. Voice – Audio cassette can be an effective of mode of instruction. It is often used in combination of text materials, present drills or commentaries or music lessons on voice, melodic dictations, and the main contents of a lesson.

Apart from the ICTs delivery modes mentioned above, ICTs can be beneficial to both music students and teachers including music composers in the following ways;

- ICTs can be used to secure up to date resources using the Internet to keep abreast with development in music worldwide. For instance a music teacher teaching his students "Western Instruments" can instructs the students to use the Internet to give details about an instrument. A "History of Music" teacher can also give students assignments to access the "history of music, or an epoch" from the

Internet. So also, a "Theory of Music" teacher can give students assignment using the Internet as a resource material for instance students can be asked to look 'types of non-harmonic tones'. In fact various subject matters in music can be accessed in the Internet.

- Autonomous learning is enhanced in music teacher education through ICTs. Individual learning is encouraged through the use of Computer Assisted Instruction. This will help the student to access, manipulate, modify, store and retrieve information which promote greater learner.

- Interactive learning is promoted through the use of ICTs. ICT facilitates interactive learning through Computer Mediated Instruction. It also help the music teacher post his course materials to the students via e-mail boxes through the Internet where the student can download at their own place, pace and time.

- ICT promote communication. Through ICT, proper channels of communication between the music teacher and students ensures accuracy of information, hence promoting quality instruction. This could be possible through Internet, Intranet, mobiles phones, e-mail, short message service and so forth.

Egonu (2009:49-50) noted that;

> The advent of the computer and electronics in music has created a host of tools for the 'computer-reliant' composer to use which are geared not only toward the representational, visual, musical aspect, but toward sound itself. Among these are the possibilities of having synergistic filtered sounds like steel box, fantasia and other 'synthesized' musical sounds. While many tools for music composition have been developed in recent years, the most important single development is undoubtedly the adoption and standardization of MIDI (Musical Instrument Digital Interface) as the lingua franca of electronic music.

In addition, he noted that presently there is different musical software available in the market which can aid in composition, sound synthesis, song arrangement, harmonization and even performance of the music piece itself. This has given rise to issue of virtual theatres, virtual mass choirs and virtual audience. The list of virtual music related tasks is endless. With the new innovation in computer-aided composition with reliable processors, operating system, and powerful musical software, we can achieve a seamless process of having out lyrics typed into the system, the voice needed is selected and the song is either performed by a virtual orchestra or a virtual mass choir. Corroborating Egonu's assertions,

Okafor (2018:18), stated that the invaluableness of the computer to the contemporary music composer cannot be over emphasized; composers can compose, orchestrate and arrange music through the use of music software and the computer. Computers can also be used to determine voices, instruments, harmonic structures, rhythms, tempo and tone balances required to achieve the effects desired in a musical composition.

The need to include ICT training packages into Music Teacher Education Programme

We have seen that ICT revolution have transformed the way in which ideas and information are recorded and communicated. ICT revolution have made easier information accessibility and provided means of livelihood to many globally. But all these importance and benefits of Information communications technology cannot be achieved in music teacher education if ICT training is not brought to the door step of trainee students who are supposed to be boosters of the economy after graduation.

A perusal through the 2012 edition of the Nigeria Certificate in Education Minimum Standards for Arts and Social Sciences Education Music Section pages 41 to 64 showed that there is no ICT related music courses in the curriculum. Although in 2019 there was a stakeholders meetings on curriculum review the writer is not aware of any ICT music related courses inserted into the music curriculum and if any that would be a welcomed idea toying the line of the paper. (See appendix for music section of the 2012 edition of the Nigeria Certificate in Education Minimum Standards or Arts and Social Sciences).

Tying the above definition of curriculum to the goals of teacher education as embedded in the National Policy on Education (2004:4) is;

1.. To produce highly motivated and efficient classroom teachers for all levels of our educational system
2. To help teachers to fit into social life of the community and enhance their commitment to national goals
3. To provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations and
4. To enhance teachers commitment to the teaching profession; and in-service training shall be developed as integral part of continuing teacher education and shall take care of inadequacies

It is explicitly clear that students of music teacher education should be given an all-round education that would allow them fit properly into the fabric of the society most especially in this age of Information and Communication Technology. According to Okokoyo (2007) citing Okafor (1988) 'teacher education is a form of education which is properly planned

and systematically tailed for the cultivation of those who teach or will teach particularly, but not exclusively in primary and post-primary levels of school. In its extended sense, it encompasses also the preparation of school administrators, supervisors and guidance counselors within the frame of reference (p.1). Corroborating Okafor (1988), Ngumah and Anulobi (2009:20) explained teacher education as the education given to the intending teachers after secondary education in universities and colleges of education, structured to equip them for their effective performance in their duties.

X-raying teacher education goals number one and number two respectively which are 'to produce highly motivated and efficient classroom teachers for all levels of our educational system and to help teachers to fit into social life of the community and enhance their commitment to national goals coupled to the definitions of teacher education above, it is imperative to entrench ICT training packages into the school curriculum because we are in changing times and the teacher education programmes in general and music teacher education programme in particular, must fit into these changing situations in order to become relevant to the society.

Uquah penned his personal experience as to the importance of being trained properly to handle music ICT related packages. This is narrated as follow;

> The first time I met Joshua Uzoigwe, the University of Ife music lecturer was visibly struggling hard not to show his frustration with a studio engineer at Ivory Music (former EMI Nigeria). It turned out that as a friend to the Managing Director, he had been granted some free studio sessions to record some of his compositions in their new midi sequencing suite and he journeyed all the way from Ife to Lagos for this purpose. However, since he had absolutely no idea how midi sequencing worked, and the engineer in question was totally clueless about music scores, their attempts at communicating with each other was similar to what must have transpired between the workers at the Tower of Babel after the Lord God scrambled their languages. Since I was there on a different mission, I just offered my greetings, took in the scenario, and promptly left in pursuit of my own interests. How the session ended, I don't know but I once again ran into Joshua on a subsequent visit to the studio and this time, Mr. Bayo Aro the chief engineer, profusely thanking God for my arrival, grabbed me and insisted, almost on bended knees, that I handle Joshua's sequencing session as the young man who should have done the job failed to turn up, and since no one else in the studio was familiar with midi sequencing at the time, it was looking very much like the composer's

> journey on this particular occasion would be in vain. I took one look at Mr. Uzoigwe's forlorn and dejected visage, and then led the way into the sequencing suite. The moment I saw his score I understood his frustration the last time I saw him. He had a condensed score of a piece for a chamber ensemble which included a flute and some other instruments which I fail to remember right now, and because the previous engineer had not understood what was required, he had simply proceeded to record Joshua on one midi channel as he played all the parts simultaneously from his condensed score. No wonder Joshua was on the verge of tearing his hair out as he heard all the different instrumental parts playing back as a flute consort and the engineer couldn't understand why he wasn't happy since he had played the music himself. I now explained to Joshua that he would have to play each instrumental part independently while I recorded them on individual midi channels assigned to the relevant instruments. The end result produced such a great sigh of relief and satisfaction from the composer who was by now overwhelmed with gratitude (Uquah, 2015:121-122).

From the scenario painted above, it is deduced that the chief engineer and sound engineer could not handle that particular midi sequencing of the music composition brought to them by Uzoigwue because of lack knowledge in that aspect but for the intervention of Mr. Uquah as at that time. It brings to mind the axiom 'you cannot give what you do not have' that is why this conference is timely. It is of utmost importance that music ICTs training packages be introduced into the music curriculum to check and void such embarrassments faced by the chief engineer and sound engineer. Therefore, bridging the ICT gap in music teacher education means providing students the opportunity, the enabling environment to learn and become ICT compliant in music ICT programmes. It means making students gain and have firsthand knowledge of how to navigate and operate computer, how to store information and retrieve information, how to apply music software to solving musical problems and use of the internet. Music students in the music teacher education programme can only be ICT compliant if they are taught. How would they be taught if it is not imbedded in their school curriculum? How can students be ICT compliant if there are no facilities to teach students? Bridging the ICT in music teacher education means access to ICT facilities. Music ICT training should be given paramount attention. We are in skill acquisition and entrepreneurial era; therefore music ICT training is a way of equipping and preparing music students to stand out and face the larger society at the end of their training programme and also to become self-employed and self-reliant. Hence Adeleke (2011:107) opined that the;

> Training for vocational skills in music technology requires adequate manual of instruction plus competent instructors and up-to-date instructional facilities for the trainees to be able to grasp the required tools to operate in the nation's music industry. It is important to note that the broader the background and training of a would-be music technologist, the more industry jobs the person will be able to undertake, the narrower the background, the narrower the opportunities. Adequate knowledge of how softwares in music work can prepare the trainees for the task.

The paper therefore advocate that Music ICT related packages should be introduced into the music teacher education curriculum – this would enable trainee students to be more familiarized with the computer, have firsthand information on how to operate and use music software and music ICT related courses to fit into the larger society. Also standard and workable ICT facilities should be made available to both teachers and students. For example computers should be provided to the department of music to enhance and facilitate easy learning and teaching process.

Music instructors or teachers who are music ICT compliant and or studio manager should be employed; also in-house training of already employed music teachers should be carried out to handle music ICT related courses in the curriculum. ICT music training may start from the simplest basics such Introduction to the Computer, Uses of the computer, before moving to the complex such as sounding engineering (where topics like studio recording, sound mixing, tone sampling, and CD production can be taught). Sound reinforcement (topics like audio production, audio mixing, use of microphones, console, different kinds of speaker and how to make fortune with them) and Software development (topics on how to use Cubase, Cakewalk, Finale, Sibelius etc). . Adeleke (2011: 107-108) outlined three vocational areas in music teacher education which are music creativity, music operation and technical areas. These are explained below.

Music Creativity

Creative areas in music are expected to lead to composing, recording and transmitting music at different socio-cultural occasions and for specific purposes. This may include composition, orchestration, song writing, record production, jingles and commercials. Others include film music, music ensembles (vocal and instrumental) etc and suggested that courses like tonal harmony, history of music, counterpoint, form and analysis, instrumentation, orchestration, electronic music, sequencing to mention a few can give a broad-base understanding to the interested candidates of music creativity.

Music Business Operation

The study areas in music business courses should include entrepreneurial study, introduction to music business, basic business accounting, music merchandising, mass communication, retail music store operation, advertising, copyright law and legal aspects of the business of music, radio and television production, theater arts management, concert promotion, music printing, edition, engraving, recording studio and publishing. Some of these technical courses include computer music technology, acoustics of music (frequencies, vibrations, echo, resonance, etc), material science, sound engineering, technical drawing, tuning of musical instruments, repairs of instruments, and construction of instruments, harmonic principles and so forth.

Technical Areas

There are some core technical areas in the study of music technology that should be made to develop skills and facilitate professional and technical progression, that will enable people to be self-reliant, self-employed and productive in music related vocations and entrepreneurial study. These areas include music theory and composition, music therapy, music business operation and management, sound recording and engineering, sound system and electronics, technical design and drawing, material science and woodwork technology, acoustic principles and public address system and musical instrument technology.

Many benefits accrue to training music students to become ICT compliant. They include but not limited to the following;

1. Acquainting music trainee students to learning how to write music composition with a music software will enable them build their skills in music composition, easy writing and mass production of such composition and also build their skills and interest in becoming a music software writer/programmer. Udoh (2011:62) noted that the present state of technological advancement in the music industry had given composers of music not only to end at compositions but also to perform record and mass-produce their works in Cassettes, CDs, VCDs, DVDs and so forth. These processes create employment in the following areas: music directors, performers, consultants, producers, arrangers, composers, recording engineers, instrumentalists, technologist, accompanists, sellers, entertainers, singers, etc.
2. Knowledge acquired from being music ICT compliant can aid students in building their own music related business career.
3. They can have their own music studios and become music studio managers and or audio engineers. Uche, Abugu & Okafor (2011:148-149) noted that presently, with the advent of technological development in the art of recording music, many

instrument and recording equipment have come to play in their use for producing, storing and retrieving of music and musical performance and activities at great quantity and frequency from a prepared separate place or room known as the studio/music studio.

4. Training students in various ICT music related packages would provide employment opportunities after graduation in film industry, the music industry and a host of music relate enterprise such as media broadcasting houses for example Television and Radio stations.

Recommendation

The following recommendations are a reiteration of already given suggestions that would help in actualizing and bridging the ICT gap in music teacher education if implemented.

1. Music teacher education curriculum should be reviewed by music teacher education stakeholders to reflect music ICT outlines and necessary packages to teach students.
2. To cater for music ICT needs, Computers and necessary ICTs accessories should be provided to train students.
3. Qualified music ICT teacher should be recruited to utilize optimum and maximum knowledge benefit for students in training including the technical know-how of music ICTs packages
4. Music teacher education stakeholders should engage, lobby and employ the help of the government and other education policy makers to encourage this noble idea of including music ICTs training into the music curriculum for the benefits of the citizenry who are interested in choosing music as a career.

Conclusion

The paper highlighted the need to include music ICT training into the music teacher education and advanced reasons for this necessity. The paper also highlighted the importance of ICTs in music teacher education and benefits of ICTs to teachers and students alike. The paper maintained that in order to bridge the ICT gap in music teacher education necessary facilities, gadgets and ICTs music related packages should be made available to achieve the goal of training and making music students ICT compliant and that bridging the ICT gap in teacher education most especially the music teacher education in this 21st in this entrepreneurial age is a welcome idea if suggestions advanced would be implemented by the government, teacher education policy makers and school management including music teacher education stakeholders.

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