# APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN MUSIC AS A SUBJECT IN ONDO SECONDARY SCHOOLS OF ONDO STATE, NIGERIA

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## ABSTRACT

*This study examines the application of Information and Communication Technology (ICT) in music as a subject in Ondo state secondary schools. This is essential because, ICT is a new trend and globally accepted as an effective means of imparting knowledge. Descriptive research design was employed and questionnaire in addition to library research were applied in data collection. The hypothesis generated was analyzed using chi-square statistical tool at 5% level of significance and the research questions were presented in frequency tables and percentages. The respondents under the study were One Hundred and fifty (150) students and thirty (30) teachers of selected secondary schools in Ondo, Ondo state, Nigeria. Findings revealed that high cost of computer hardware and software; weak infrastructure; lack of human skills and knowledge in ICT as well as lack of relevant software are the major barriers affecting the adoption of ICT in music as a subject in Nigerian secondary schools. Additionally, both teachers and students perceived ICT extremely helpful and effective in the process of teaching and learning. Based on the findings from the study, it was recommended that secondary schools in Nigeria should be given adequate funds for the essential paraphernalia required for its usage. Conversely, for appropriate use of ICTs, essential policies should be made to scaffold ICT-related methods that will encourage and motivate the interest of both the teachers and students*.

**Keywords:** Information Communication Technology (ICT), Teaching, Learning, Music, Secondary Schools

## INTRODUCTION

In early civilised times, people used to relate in geologically local groups in which messages were effectively relayed through verbal communication. As development extended over bigger geological areas, a range of extensive – distance exchange of information techniques was attempted specifically, the use of smoking signals, jingling of bells and the like. One of the most primitively known visual links was the employment of fire symbol by the Greeks in the 8$^{th}$ century B.C. for conveyance alarms, in requesting for aid, and for declaration of a

particular proceedings to the public (Ajagun, 2003). Anderson (2018) asserted that because of environmental and technology limitation, it generally turned out to be faster and more efficient to send letter messages by courier over the road network. The discovery of telegraph ushers in a new development in communication, that is, the era of electrical telegraphy system, which was first encoded into strings of binary and was then manually transmitted and received (Anderson, 2018).

Ajagun (2003) further explained that the development and implementation of communication systems employing electric signals became increasingly sophisticated leading in turn to the birth of telephone, radar and microwave links. At present, these interaction systems have turned out to be an essential and vital part of daily life with routes astride the whole world conveying text, pictures, voice, video and lots of other kinds of information from one place to another. Contemporary development on incorporating circuits to know-how has permitted computers to develop into accepted, cheap and generally accessible to the general public and it allows the users to be extra fascinated in linking each other up through the internet.

Busari (2014) asserted that Internet is a computer system that allows millions of computer users around the world to exchange information with the use of the internet connected system software which makes communication easier and faster. Many professional bodies have sprung up to assist the use of this technology such as, management information services (MIS) and information technology (IT) among others. IT is concerned with the use of technology in large organisations. In particular, IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information. Conversely, computer professionals are often called IT specialists or Business Process Consultants. The division of a company or university that deals with software technology is often called the IT department. In the United Kingdom education system, information technology was officially incorporated into the school curriculum while the normal

curriculum was formulated. It was swiftly understood that the areas included were not only considered necessary but functional to all subjects (Agommuoh & Nzewi, 2003). With the arrival of the internet and the broad band connections to all schools, the application of IT knowledge, skills and understanding in all subjects became a reality. This change in emphasis has resulted in a change of name from information technology to information and communication technology (ICT). Talabi (2004) opined that ICT in education can be understood as the application of digital equipment to all aspects of teaching and learning. It is present in almost all schools in advanced countries, and its growing influence in developing countries of the world too cannot be under estimated. However, for the past three decades, there has been a legitimate concern that developing countries have been slow in terms of facilitation of learning among the majority of citizens (Hubert, 2012).

Busari (2014) explained that the whole world is experiencing the advancement of science and technology. Each nation is either a powerful producer of technology or a consumer of other nation's technological efforts. In fact, technology has made the whole world a global village. ICT has made a new landmark in globalizing education. The use of ICT is fast gaining prominence and becoming one of the most important elements defining the basic competencies of the students. According to World Bank Group (2002), ICT consists of the hardware, software, networks, and media for the collection, storage, processing, transmission and presentation of information (Agommuoh & Nzewi, 2003).

The use of ICT in teaching is a relevant and functional way of providing education to learners that will assist in imbibing in them the required capacity for the world of work. Very few jobs today do not require the use of skills in technology, collaboration, teamwork, and information; all of these can be acquired through teaching with ICT. It fundamentally changes the way we live, learn and work. Technology has entered the classroom in a big way and has become part of the teaching and learning process (Busari, 2014).

Students are left on their own, even when they are required to read on their own and the appropriate and related books and materials are lacking, the students lose interest, motivation and passion. In some cases, frustration sets in and students abandon the Music discipline or subject for another which they can cope with, that is; students at times abscond art class to commercial or science class, basically, because other disciplines are not as abstract in nature. However, music is a unique subject, which promotes the acquisition of specialised skills and knowledge, explaining the natural phenomena of life in the society (Ogunrinade etal., 2012). It is a subject that grew up with civilization as man's quantitative needs increased. It arose out of practical problems and man's need, to solve them, and has contributed to the development of the art, culture and promotion of civilization in general (Ogunrinade & Babarinde, 2018).

Mbanugo (1991) asserted that music is basic to education. He observed that music has penetrating powers that strike a common chord in the hearts of all human-beings irrespective of country or state of origin. Music deepens understanding and knows no barriers. It is often said to be an international language; a universal language. It is part of life and is crucial for preparing Nigerian youths for the future. The nation cannot afford to deprive youths of the invaluable experiences of school music. All learning and education are important so also is musical learning via music education.

Music education is an art that helps to enrich human life, empower people and thereby raise human well-being. It is the art of imparting music knowledge to the youths. Joining this parade, Omibiye-Obidike in Onyiuke (2009) noted that "Music education is a comprehensive education geared towards a functional and artistic career in the society. It contributes to all round development of the individual. Supporting the above view, Sayonnwo (2000) opined that a proper music education in our schools will help our youths to become powerful instruments for national consciousness and integration. Therefore, the subject should be globally accepted with this view.

Education in general is the totality of knowledge, skills, competences or quality of characters gained or acquired by one through instructions (Okeke, 2003). It is widely regarded as a veritable instrument for social change and national development. Education has various definitions and interpretations when viewed as a process, product or a discipline in relation to expressions made by various authors. Okeke (2003) defined education as a means by which an individual is helped to acquire civilization of the past, so that he may be able to take a meaningful place in the civilization of the present. Education therefore, can be said to be the reformation of an individual's beliefs, values, needs, attitudes, behaviour, habits, skills and knowledge.

There is a universal recognition of the need to use ICT in the teaching-learning process as we enter the era of globalization where free flow of information via satellite and the internet holds sway in global information dissemination of knowledge. Students at secondary school level in Nigeria educational system are not allowed to use a mobile phone especially during the school hours. This is to prevent them from misusing it for other purposes such as playing games during the lesson and watching pornographic films among others. They are considered to be childish and can be easily carried away by several functions available on it. Nevertheless, Nigeria as a nation is trying to meet up with this new trend as she has not properly made significant efforts to integrate ICT into secondary school curriculum. A great deal of instructional and administrative work in secondary schools in Nigeria is still carried out manually and there are few researches in the area of its application, even though the usage of ICTs in the process of teaching and learning is exceedingly helpful and beneficial. It is against this background that this paper examines the application of ICT as a medium of instruction in teaching and learning of music as a subject in Secondary Schools in Ondo, Ondo State.

## THEORETICAL FRAMEWORK

### Diffusion Theory

The study was guided by diffusion theory by Rodgers (1962) in deploying the application of ICT in teaching and learning of music. Diffusion theory states that diffusion is the expansion of a new idea from its starting place of discovery or foundation to its ultimate users or adopters. It is a development by which an innovation is executed and gains acceptance by members of a certain community. Within this context, "adoption" refers to the stage in which technology is selected for use by an individual or an organization. "Innovation" is equally used with the nuance of a new technology being adopted. "Diffusion" refers to the stage in which the technology spreads to general use and application (Rogers, 1962).

The diffusion theory has been incorporated in a number of disciplines, from instructional technology, marketing to agricultural research carried out in 1968 in Vihiga district, Kenya by Rogers. Professionals in these fields have used the theory of diffusion to increase the adoption of innovative products and practices. Rogers (1962) found that a number of factors interacted to influence the diffusion of an innovation. The four major factors that influenced the diffusion process are the innovation (new information) itself, how information about the innovation is communicated, time, and the nature of the social system to which the innovation is being introduced. Rogers (1962) observed that diffusion -innovation continuum acquires S-Curves and recognizes five categories of participants: innovators, early adopters, early majority, late majority and the laggards.

Each of these groups has distinct characteristics. *The Innovators* tend to be experimentalists and "techies" interested in technology itself and are financially stable, well educated, risk undertakers and seen as peer by other groups; *Early adopters* may be technically sophisticated and interested in technology for solving professional and academic problems, *Early majority* are pragmatists and constitute the first part of the

mainstream; *Late Majority* are less comfortable with technology and are the skeptical second half of the mainstream; *laggards* may never adopt technology and may be antagonistic and critical of its use by others. They are financially less stable, conservative, less educated and fear to undertake risky operations.

Over the years, diffusion theory has been important in the study of the spread of modern technology. New educational technologies have been touted as the revolutionary pedagogical wave of the future. Classroom films, programmed learning devices, language laboratories, educational television and computer assisted instruction have been adopted and integrated into the curriculum with varying degrees of success. Each technology is widely perceived as meeting a need, and each gains a measure of initial commitment of resources from a high level administrative or legislative entity. Their adoption and diffusion process generally follow what has been termed the "traditional model," a "top-down" process in which administrative "mandate" introduces the technology and administrative perceptions, decisions and strategies which determine the adoption. Successful adoption is therefore highly dependent on the degree, stability and wisdom of administrative sponsorship.

The use of computer technology in music education in Nigeria is not only a recent innovation in the music industry but very recent in secondary schools. As a result, very few schools are able to access, acquire and embrace this technology and therefore fall in the category of innovators. The distinctive characteristics of those schools that fall under the innovators are: Secondary schools in the capital city that are exposed to music computer technology. Schools in urban areas are more exposed to new technologies as opposed to rural schools in other parts of the country. However, those that are well established in terms of qualified and well-trained music personnel, materials and finances ventured into computer music technology much earlier, when other schools ignored it. Federal government secondary schools and some

well-established private secondary schools, for instance, are better endowed with resources than most public schools. This category includes schools that are old and may be conceived as superior to others (Anderson, 2018).

This theory shaped the study as it laid a strong case for surveying the usage of computer technology for adoption in music education. Surry and Farquhar (1997) asserted that increased awareness of diffusion's importance and expanded use of diffusion theories are of potentially great benefit to instructional technology in the field of music education. The potential of computers as educational tools has thus been accepted by educators. Secondary schools are currently among the leading users of computer facilities. It is within such a background that the study assessed the place of computers in facilitating music education in Nigerians secondary schools by focusing on Ondo state.

**Concept of ICT**

According to Hubert (2012), ICT refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audio-visual processing and transmission systems, and network-based control and monitoring functions. Although, ICT is often considered an extended synonym for information technology (IT), its scope is broader. ICT has more recently been used to describe the convergence of several technologies and the use of common transmission lines carrying very diverse data and communication types and formats.

**Significance of ICT to teaching and learning of music**

The importance of ICT is quite evident from the educational viewpoint. Though, the chalkboard, textbooks, radio/television and film have been used for educational purpose over the years, none has quite impacted on the educational process like the computer (Ghavifekr, & Rosdy, 2015). While television and film impact only on the audio-visual faculties of users,

the computer is capable of activating more senses, such as sight, hearing and touch of the users (Adeyemo, 2010). ICT has the capacity to provide higher interactive potential for users to develop their individual, intellectual and creative ability. The main purpose of ICT comprises the development of human mental resources, which allow people to both successfully apply the existing knowledge and produce new knowledge (Busari, 2014). The collective and rigid nature of learning and the passive nature of the learning associated with the use of radio, television and film do not contribute any innovative changes to traditional methods in education system. ICTs are being used in the developed world for instructional functions. Today, computers perform a host of functions in teaching and learning as many nations are adding computer literacy, reading and writing literacy as skills students will need for succeeding in a technologically developed world (Thomas, 1987). At the instructional level, computers are used by music student to learn reading notes.

In educational multimedia application Shavinina (1997) asserted that today's learning contents are domain-specific products and that they dominate the world market. According to Shavinina (1997), domain-specific educational multimedia is directed to knowledge acquisition skills development in music. There is no doubt that ICT provides productive teaching and learning in order to increase people's creative and intellectual resources especially in today's information society. Through the simultaneous use of audio, text, multicolour images, graphics, motion, ICT gives ample and exceptional opportunities to music students to develop capacities for high quality learning and to increase their ability to innovate. Nigeria cannot afford to lag behind in using multimedia to raise the intellectual and creative resources of her citizens. This is particularly important for children whose adulthood will blossom in a cyber-environment entirely different from that of the present (Shavinina, 1997). Nigerian children need to be taught by radically new educational programmes and a variety of educational contents with multimedia, playing a key role.

**IMPACT OF ICT ON TEACHING AND LEARNING OF MUSIC**

The impact of ICT in teaching and learning of music is imperative; some early difficulties have to be overcome if ICT is to be properly incorporated into music education. The success of ICT in Nigerian classrooms would depend not only on the extent to which the need of students is met but on the availability and accessibility of the ICT adequate and relevant equipment for the use of the teachers and students (Temi, 2003). This is clearly calling to attention that the problems of integrating ICT into music teaching are to become conscious that the need of the students is the needs of the schools.

To attain effectual teaching and learning of Music as a subject at secondary school level, there is need for appropriate incorporation of ICT to stimulate and motivate the student's attention. The initiative that teaching and learning can productively be obtained by means of ICT usage facilities involving the teachers and the students had engendered hope and dismay, excitement and fear respectively. Hope and excitement are referring to the fact that many students can be accessed at appropriate time and place. Dismay and fear have to do with the lack of essential equipment for effectual ICT usage which is lacking in low-income countries like Nigeria (Adeyemo, 2010).

The use of computers in schools has developed and expanded as educationists identify the latent knowledge with ICT as an approach for enhancing students reasoning and problem-solving abilities. There is a shift which has been determined by the excess of latest communication and information tools now increasingly obtainable to students in school and at home, each of which proffers new assistances to teachers and students similar for developing student attainment and for actualization of the demand for 21st century skills (Ghavifekr & Rosdy, 2015).

It is believed that specific uses of ICT can have positive effects on music students' achievement when it is used appropriately to complement a teacher's existing pedagogical philosophies. Computer Aided Instruction has been seen to slightly improve music students' performance on multiple choices, and standardized testing in some areas. Computer Aided (assisted) Instruction (CAI), which refers generally to student self-study or tutorials on PCs, has been shown to slightly improve student test scores on some reading and math skills, although whether such improvement correlates to real progressing student learning is debatable (Temi, 2003).

The study was guided by the following research questions

1. What is the impact of ICT on teaching and learning of music in secondary schools?
2. What are the likely hindrances confronting the use ICT in teaching and learning of music in secondary Schools?

Ideally, the study is drawn on the hypothesis that:

**$H_0$**: There is no significant impact of ICT on teaching and learning of music in secondary schools.

**METHODOLOGY**

Descriptive Survey research design was adopted for this study. According to Salaria (2012) descriptive survey is a method of research which concerns itself with the present phenomena in terms of conditions, practices, beliefs, processes, relationships or trends. It is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation. Descriptive survey research design is concerned with the characteristics of individuals and with the characteristics of the whole sample thereof (Salaria, 2012). It was adopted to discover the prevailing state and situation of the use of ICT in teaching and learning of music in secondary schools in Ondo, Ondo State.

The study population comprised of students of music and music teachers of selected secondary schools in Ondo local government, Ondo State, Nigeria. There are two (2) local government areas in Ondo town. In the sampling stage, Ten (10) secondary schools were purposively selected for the study as they were the only secondary schools that offer music as a subject. Of these Ten (10) schools, four (4) were private while the remaining six (6) were public schools. The criteria for selecting the sampled schools required that the school should be offering music at the Junior Secondary School (JSS) with at least a music teacher working in the schools; the schools (in the case of private schools) must be registered with the government. In addition, the teachers must have been professionally qualified as music teachers, and he or she must have been teaching music for at least one (1) year. Finally, the selected students must have been in the Junior Secondary Schools, and have been learning music from Junior Secondary School I (JSSI). In all, the sample size consisted of one hundred and fifty (150) students drawn from JSS II, seventy five (75), JSSIII, seventy five (75) students, and thirty (30) teachers.

The instrument for data collection was a twenty (20) item modified likert-type questionnaire which was developed for data collection. The instrument was in three sections; Section A was designed to elicit information on the teachers perception of the impact of ICT on teaching and learning of music in Secondary Schools which comprised five (5) items; Section B was on teachers perception of the likely hindrances confronting the use of ICT in teaching and learning of music in secondary schools, it consisted of eight (8) items; while the last Section C was intended to draw out information on the music students response to the likely hindrances confronting the use of ICT in the learning of music in secondary Schools. Seven (7) items were listed in this last section. The face and content validity of the instruments were ascertained through consultations with the experts in music arts, test development and measurement experts, and curriculum experts. The test was also given to music education test

experts in the University of Lagos who gave useful suggestions, modified vague and ambiguous items and made corrections which were used to rework the instruments.

On the other hand, the reliability index was ascertained through a pilot study conducted with music teachers and students in Federal Government College in Osun State. Relevant reliability statistics were used and the results for each of the instruments were obtained as follows:

***Table 1. Relevant Reliability Statistics***

| S/N | INSTRUMENT | RELIABILITY STATISTICS | RELIABILITY INDEX OBTAINED |
|---|---|---|---|
| **A** | Teachers Perception of the Impact of ICT on Teaching and Learning of Music in Secondary Schools | Cronbach's Alpha Technique | 0.81 |
| **B** | Teachers Perception of the Likely Hindrances Confronting the Use of ICT in Teaching and Learning of Music in Secondary Schools | Cronbach's Alpha Technique | 0.97 |
| **C** | Music Students Response to the Likely Hindrances Confronting the Use of ICT in Teaching and Learning of Music in Secondary Schools. | Cronbach's Alpha Technique | 0.96 |

## RESULTS OF THE STUDY

In order to establish prevailing state and situation of the use of ICT in the teaching and learning of music in Ondo secondary schools, Ondo State, the authors sought to objectively examine the situation from both the teachers and students. The study assessed the impact and the problems confronting the use of ICT. Opinions were drawn on a structured four-point likert scale of SA-Strongly Agree, A-Agree, SD-Strongly Disagree and D-Disagree. Responses were scored as 1, 2, 3 and 4 for positively worded items while the negative items were scored in the reverse order. Below are the objectives and the responses of the teachers and the students.

**$H_0$**: There is no significant impact of ICT on teaching and learning of music in secondary schools.

***Table 1: Teachers Perception of the Impact of ICT on Teaching and Learning of Music in Secondary Schools***

| S/N | STATEMENTS | SA | A | D | SD |
|---|---|---|---|---|---|
| **1.** | ICT enables access to relevant information useful in the teaching and learning of music in secondary schools. | 11 | 14 | 3 | 2 |
| **2** | Use of ICT enhances good method of teaching music. | 8 | 13 | 5 | 4 |
| **3** | Use of ICT has made teaching of music interesting | 15 | 12 | 2 | 1 |
| **4** | Teachers need additional training and empowerment on how to use ICT in teaching and learning of music | 25 | 3 | 1 | 1 |
| **5** | ICT improves the students' knowledge of music | 20 | 8 | 1 | 1 |

| **O** | **E** | **O=E** | **$O=E^2$** | **$\frac{(O=E)^2}{E}$** |
|---|---|---|---|---|
| 11 | 15.8 | -4.8 | 23.04 | 1.46 |
| 8 | 15.8 | -7.8 | 60.84 | 3.85 |
| 15 | 15.8 | 0.8 | 0.64 | 0.04 |
| 25 | 15.8 | 10.8 | 116.64 | 7.38 |
| 20 | 15.8 | 5.8 | 33.64 | 2.13 |
| 14 | 10 | 4 | 16 | 1.60 |
| 13 | 10 | 3 | 9 | 0.90 |
| 12 | 10 | 2 | 4 | 0.40 |
| 3 | 10 | -7 | 49 | 4.90 |
| 8 | 10 | -2 | 4 | 0.4 |
| 3 | 2.4 | 1.4 | 1.96 | 0.82 |
| 5 | 2.4 | 3.4 | 11.56 | 4.82 |
| 2 | 2.4 | -0.4 | 0.16 | 0.07 |
| 1 | 2.4 | -1.4 | 1.96 | 0.82 |
| 1 | 2.4 | -1.4 | 1.96 | 0.82 |
| 2 | 1.8 | 0.2 | 0.04 | 0.02 |
| 4 | 1.8 | 3.8 | 14.44 | 8.02 |
| 1 | 1.8 | -0.8 | 0.64 | 0.36 |
| 1 | 1.8 | -0.8 | 0.64 | 0.36 |
| 1 | 1.8 | -0.8 | 0.64 | 0.36 |
| **$X^2$** | | | | 39.19 |

| $X^2$ Cal | $X^2$ tab | Df | LOS |
|---|---|---|---|
| 39.19 | 21.03 | 12 | 0.05 |

**Decision Rule**

Since the calculated value of $x^2$ which is 39.19 is greater than the table value, which is 21.03, the null hypothesis ($H_0$) will be rejected and the alternative ($H_1$) accepted. It therefore means that there is a significant impact of ICT on teaching and learning of music in secondary schools.

***Table 2. Teachers' Perception of the Likely Hindrances Confronting the use ICT in the Teaching and Learning of Music in Secondary Schools***

| S/N | Items | SA | A | D | SD | Total |
|---|---|---|---|---|---|---|
| **1** | Professionally qualified teachers are not available to teach music as a subject in Schools | 20 (66.7%) | 9 (30%) | 1 (3.3%) | 0 (0%) | 30 |
| **2** | Irregular electricity supply also leads to lack of appropriate utilization of ICT | 10 (33.4%) | 14 (46.6%) | 6 (20%) | 0 (0%) | 30 |
| **3** | Some teachers have lackadaisical attitude towards teaching and learning of Music with the use of ICT | 16 (53.3%) | 10 (33.4%) | 3 (10%) | 1 (3.3%) | 30 |
| **4** | Computers are not available for teachers' use in my school. | 7 (23.3%) | 13 (43.4%) | 10 (33.3%) | 0 (0%) | 30 |
| **5** | Internet access is not accessible to teachers in my school. | 9 (30%) | 12 (40%) | 8 (26.7%) | 1 (3.3%) | 30 |
| **6** | Poor school environment affects the teacher on how to make use of ICT in teaching and learning. | 18 (60%) | 7 (23.4%) | 0 (0%) | 5 (16.6%) | 30 |
| **7** | Adequate funds and infrastructural facilities are provided for ICT by the school administrators. | 0 (0%) | 5 (16.6%) | 7 (23.4%) | 18 (60%) | 30 |
| **8** | We do have workshop and training on ICT in my school | 3 (10%) | 1 (3.3%) | 10 (33.4%) | 16(53.3 %) | 30 |

From Table 2 above, a total of 9 teacher-respondents representing 30% agreed while 20 of them representing 66.7% strongly agreed that professionally qualified teachers are not available to teach music as a subject in schools. None of them disagreed and one of them representing 3.3% strongly disagreed with the statement. In the second item, 46.6% of the total respondents agreed while 33.4% strongly agreed and were in consensus that there should be remuneration for music teachers to serve as motivation in order to make use of ICT, where

as 20% disagreed. None, (0%), strongly disagreed with the question. In question three 23.3% of the student population in their response showed that they agreed, and 58.7% strongly agreed that their school is well equipped with functional (ICT) facilities that can facilitate effective teaching and learning of music.14.7% of the total student respondents did not agree and 3.3% strongly disagreed on the item. From item four, 33.4% of the total respondents agreed and 53.3% strongly agreed on the concept that some teachers have lackadaisical attitude towards teaching and learning of music with the use of ICT while 10% disagreed and 3.3% strongly disagreed on the notion. 43.4% agreed and 23.3% strongly agreed to support the fact that Computers are not available for teachers use in their school while 33.3% disagreed and 0% strongly disagreed with the concept. In item five 40% of the teacher's agreed and 30% strongly agreed that Internet access is not accessible to teachers in their school while 26.7% disagreed and 3.3% strongly disagreed on this concept. In Items six 60% of the teacher's population agreed and 23.4% strongly agreed in their response which showed that poor school environment affects the teacher on effectively making use of ICT in teaching and learning of music. 16.6% of the total teacher respondents disagreed and also 0% strongly disagreed with the assertion.

In item 6, five (5) teachers representing 16.6% of the total teacher respondents agreed and none strongly agreed that adequate funds and infrastructural facilities are provided for ICT by the school administrators. In addition, 7 (23.4%)of the respondents disagreed and 18 teachers representing 60% strongly disagreed on this fact. In item 8, only one teacher (3.3%) agreed to the statement that there is provision for workshop and training on ICT in their school while 3(10%) of the teachers strongly agreed and 10 representing (33.4%) disagreed and 16 of the teachers (53.3%) strongly disagreed with the statement.

***Table 3. Music Students Response to the Likely Hindrances Confronting the use ICT in Teaching and Learning of Music in Secondary Schools***

| S/N | Items | SA | A | D | SD |
|---|---|---|---|---|---|
| **1** | Students have access to all functional ICT Technology (ICT) in my school | 7 (4.6%) | 15 (10%) | 66 (44%) | 62 (41.4%) |
| **2** | There are lessons on how to access relevant information on the computer in my school, | 11 (7.4%) | 22 (14.6%) | 51 (34%) | 66 (44%) |
| **3** | There is computer and internet facilities library in my school. | 15 (10%) | 7 (4.6%) | 62 (41.4%) | 66 (44%) |
| **4** | Students are allowed to operate and work on computer in my school | 6(4%) | 21(14%) | 66(44%) | 57(38%) |
| **5** | My music teacher normally teaches us with computer. | 6(4%) | 19(12.7%) | 49(32.7%) | 76(50.6%) |
| **6** | I have access to computer and internet facilities at home. | 43 (28.6%) | 11 (7.4%) | 46 (30.6%) | 50 (33.4%) |
| **7** | We have a computer teacher in my school | 26(17.3%) | 3(2%) | 77(51.4%) | 44(29.3%) |

From Table 3 item1, 44% of the total respondent disagreed and 41.4% strongly disagreed on the statement that Students have access to all functional ICT in their schools while 10% agreed and 4.6% strongly agreed. In Item2, 34% of the respondents agreed to support while 44% strongly agreed that irregular electricity supply equally leads to lack of appropriate utilization of ICT, 14.6% and (7.4%) of the students disagree and strongly disagreed respectively with the assertion. Under item 3, 44% of the total respondents agreed and 38% strongly agreed that the ICT centre was not available in their schools while 14% disagreed and 4% strongly agreed. In item 4, 32.7% of the total respondents agreed while 50.6 strongly agreed that relevant online information is not necessary to improve their study while 12.7 disagreed and 4% strongly disagree that relevant online information is essential to improve their study.

## DISCUSSION OF FINDINGS

The above findings indicate that despite the fact that selected music teachers and their students were not exploiting the application of ICT in the teaching and learning of music as it should be, owing to lack of relevant equipment needed for its effective use, teachers'

perception of the significant impact of ICT on teaching and learning of music in Secondary Schools was tested positive. They claimed to have recognised the usefulness of ICT if properly utilised and exploited. There is a significant impact of ICT on teaching and learning of music in secondary schools. The calculated value of $x^2$ which is 39.19 is greater than the table value which is 21.03, $H_0$ is thus rejected and $H_1$ is accepted. It therefore means that the significant impact of ICT on teaching and learning of music in secondary schools is enormous. This is in line with Ovute and Ovute (2015) who explained that ICT has contributed immensely in every sphere of life. They further put in plain words that its impact on the growth and quality of education is much; particularly, if well harnessed in Nigeria, ICT will prove its course in Vocational Education growth and development with subjects like music at secondary school level (Ovute, 2015). This development can only be achieved when adequate and relevant facilities are put in place for the use of both the teachers and students in Nigerian secondary schools.

Moreover, numerous challenges in the application of ICT in teaching and learning of music by both the teachers and the students of the selected Secondary Schools were clearly seen as serious obstruction to the effective application of ICT usage at secondary school level. Professionally qualified music teachers are not available to teach music as a subject in Schools.

The accomplishment of music programmes reclines on the quality of the teachers available for the teaching -learning process. The problem of dearth of trained and qualified personnel to disseminate music instruction affected not just the primary schools but further extend to both Junior and Senior Secondary Schools in Nigeria. Adeogun (2001) affirms that the major problem afflicting music education in Nigeria is the acute shortage of resourceful professionally qualified music teachers.

Another alarming impediment to the use of ICT in Nigerian secondary schools is reliability of electricity supply. Computer equipment was designed to function with stable and reliable power supply. For the past fifteen years, Nigeria has been having difficulty providing stable and reliable electricity supply to every nook and cranny of the country (Aduwa-Ogiegbaen & Iyamu, 2005). Presently, this menace is seriously affecting every facet of the Nigerian economy.

Many public secondary schools in Nigeria are equipped with adequate infrastructure such as classrooms, library with relevant textbooks; only few are equipped with television or radio set while many cannot boast of having a set of computers. Apart from the basic computers,, other costs associated with peripherals such as internet facilities, printers, monitors, papers, modem, extra disk drives are not available in a good number of Nigerian secondary schools (Ogunrinade et al., 2012). Similarly, majority of the Secondary Schools cannot pay for the excessive Internet connection costs.

Lack of skills and technical know-how is another problem confronting the use of ICT in Nigeria. The human skills and knowledge to fully incorporate ICT into secondary school education is a serious hindrance to the teaching and learning of music as a subject. To use ICT in secondary schools in Ondo local government area of Ondo, the need for locally trained workers to install, maintain and support these systems cannot be over emphasized. Those who are designated to use computers in Nigeria do not receive adequate training, or at worst, do not receive any training at all (Okebukola, 1997). In Nigeria also, most secondary school teachers lack the skills to fully utilize technology in curriculum implementation, hence the traditional chalk and duster approach still dominates in secondary school pedagogy (Ovute & Ovute, 2015). Secondary school teachers in Ondo town local government need to be trained in educational technologies and the integration of computers into classroom teaching. According to Carlson and Firpo (2001), teachers need effective tools, techniques,

and assistance that can help them develop computer based projects and activities especially designed to raise the level of teaching in required subjects and improve student learning.

An additional quandary is lack of pertinent software. According to Salomon (1989), there are clear indications from many countries that the supply of relevant and appropriate software is a major bottleneck obstructing wider application of the computer. Even if Nigeria tries to approach this software famine by producing software that would suit its educational philosophies, there are two major problems to be encountered. First, the cost of producing relevant software for the country's educational system is enormous. Second, there is dearth of qualified computer software designers in the country (Salomon, 1989), Secondary schools not only in Ondo local government area of Ondo state but throughout Nigeria are not given adequate funds to provide furniture, requisite books, laboratories and adequate classrooms let alone being given adequate funds for high-tech equipment (computers) and Internet connectivity (Ajayi & Ekundayo, 2009).

There is need for society to embrace development in technology. The need for effective manipulation and control of physical environment by man is imperative for better development of the educational system. If schools throughout Nigeria are to maintain optimal educational standards, they should be provided with adequate funds, infrastructural facilities in terms of modern classrooms equipped with electronic computer systems which are connected to ICT, well equipped laboratories, workshops, libraries, instructional materials and highly qualified personnel that can effectively utilize these resources (Ajayi & Ekundayo, 2009).

ICT is significant because it is necessary for the development of the educational system. Schools should be properly improved with regard to the use of ICT and Nigerian government should pay more attention to educational system of the country by providing necessary

support to the growing trend of education to meet international standards. Finally, secondary school students need to be accorded the best in education, especially with modern facilities.

**CONCLUSION**

Many students consider ICT very helpful in doing assignments. Students also assume responsibilities when they use ICT to organize their work through digital portfolios or projects. In addition, the study showed that ICT has significant impact on music students and learning processes if properly employed. Indeed, an absolute majority of music students in Ondo west local government area of Ondo state claim to use internet to do tasks, such as preparing assignments and sequencing classroom activities. There is also evidence that broadband and interactive whiteboards play a central role in fostering music students' communication and increasing collaboration between educators.

The result of the study revealed that music teachers and their students were not exploiting the application of ICTs in the teaching and learning of music to a great deal. This is because; the teachers and their students often encounter difficulties in the application of ICT in music classrooms. Nonetheless, until sufficient computers and relevant software, qualified and professional music teachers, adequate and relevant musical equipment to stimulate and kindle students in learning music as a subject at secondary school level are made available and put into good use, the subject may continue to face a serious setback as one of the vocational subjects at secondary school level. Therefore, it is advisable that secondary schools in Nigeria should be given adequate funds for the essential paraphernalia required for its usage. Conversely, for appropriate use of ICTs, essential policies should be made to scaffold ICT-related methods that will encourage and motivate the interest of both the teachers and students.

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