Enhancing the Quality of Educational System Using ICT

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Abstract - **There is a continuous decline in educational system due to the primitive way of teaching in schools as a result of growth in technology. However, no one can deny the impact which Information and Communication Technology (ICT) continues to have on almost every aspect of our daily lives, or the speed with which new developments are adopted. ICT can contribute to universal access and equity in education, delivery of quality learning and teaching, professional development of teachers, and more efficient educational management, governance and administration. It has the potential to transform the nature and process of the learning environment and visualize a new learning culture. Interactively, flexibility and convenience have become the order of the day in the ICT supported environment. ICT helps students share resources and learning spaces, promote focused and collaborative learning principles by enhancing critical thinking, creative thinking and problem solving skills. ICT based education is definitely the direction towards which the whole world is progressing to. This paper thus attempts to propose ways by which ICT will be used in different ways to enhance quality of education.**

Keywords: ICT Infrastructure, Internet, Computer, Telecommunication, Education.

I. INTRODUCTION

The twenty first century is knowledge and information revolution century. Technology will play a fundamental role in 21st century. Modern civilization is characterized by the growing pace of change. It is because of the enormous difficulty in understanding, appreciating and even surviving change that we talk about the impact of these changes as future shock. ICT is the fusion of computers and the telecommunications [1]. Computers enable people to work creatively, but they are limited by what they can access. Adding a communication channel, such as the internet or other information services, significantly extends the capability of the computer [2]. It can also become a means of obtaining education, information and working creatively with others irrespective of geographical barriers. ICT is that technology which uses the information to meet human need or purposes including processing and exchanging. Certainly, the leadership

of future education will be assumed by ICT. ICT in education is the processing of information and its communications facilities and features that variously support teaching, learning and a range of activities in education [3]. In the era of computer technology, the term ICT mainly focuses on the infrastructure, devices and sources of computer technology and thus it is imperative to discuss about the use of ICT in education by focusing mainly on computer based technology. ICTs have the potential to accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economy viability for tomorrow's workers as well as strengthening teaching-learning process. The integration of information and communication technologies can help revitalize teachers and students. This can help to improve and develop the quality of education by providing curricular support in difficult subject areas [4].

II. LITERATURE SURVEY

Information and Communication Technology (ICT), is another extensional term for information technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information [5]. The term ICT is also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the telephone network with the computer network system using a single unified system of cabling, signal distribution and management. However, definition, as "the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis." The broadness of ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, e.g. personal computers, digital television, email, robots [6].

Basically, Information and Communication Technology involves the use of computers in enhancing work or making life easier and faster. Use of computers can be dated far back

to the early post World War II years. The first commercial computer was the UNIVAC I, developed by John Eckert and John W. Mauchly in 1951, and many others followed up through the years until now when there is computer or resemblance of computer any direction you turn to.

The earliest use of Computers and ICT generally can be traced to 1981, when IBM released its first Personal Computer [7]. But with the introduction of the Laptop in 1985, and the birth of the internet in 1990, use of Computers in classroom became easily achievable. This led to schools replacing old systems with Computer-aided learning, and over the years, it has grown and gotten so advanced that one can complete all classes in a courses just with an internet-enabled computer alone [8]. Figure 1 shows the ways by which ICT can make learning fun.

III. DISCUSSIONS

3.1 Comparison between Educational Systems before and After the Advent of ICT

A. Before ICT

- Education system was rigid. The knowledge that was passed on was based on the information that existed in the text books and dependent on the limited skill set of the teacher.
- Due to financial constraints, not all teachers could travel to different places to impart education.
- The system was boring and monotonous with a typical classroom setup where the teacher wrote on the blackboard and the students copied the data.
- There was no database maintained to ensure that the evaluation of the pupil is preserved.
- No access to Internet, and hence knowledge was limited to what was taught in classrooms.
- Libraries were mostly out-dated and not enough for research as materials were limited to the few hard copy books available.
- Students had to wait for manual collation and checking of results.

B. With ICT

- More accurate result is obtained.
- The skill set of a teacher is no more a hindrance as all students have access to top class education using the internet.
- School broadcasting, webcasting of important lectures and direct class teaching online became possible making it easier for students to receive lectures in ways comfortable for them.

- Databases can be created to store and keep track of student's progress.
- Libraries have facilities that enable students get adequate study and research materials online.
- Results can be checked online from anyone's location.
- Teachers can easily evaluate students' assessments or exams using computer software.

3.2 Ways ICT can be Used to Enhance Quality of Educational System

The above will be treated under three main categories viz:

- By motivating Students or Making learning fun and less Monotonous.
- By facilitating the procurement of necessary basic skills.
- By further enhancing education system management.

A. By Making Learning Fun

With classroom technology, educators can get more students engaged, improve collaboration, and most importantly make learning fun. There are some ways they could make this happen.

Video Streaming: Video in the classroom can really help create a clearer and more complete picture for students. YouTube is a great tool for this. Chances are that you can find a video clip to compliment any lesson on the YouTube.

Play Games: Using mobile devices like iPads and tablets you can keep students involved with all sorts of educational games for just about any subject. Students can keep track of their progress and work to compete with other students to advance to the next level.

Social Media: Rather than ban social media, it's best to embrace it. Students are already engrossed with social media outside of class, so bringing it into the classroom is sure to instantly grab their attention. One can use Facebook or Twitter to post a topic for discussion and get all students involved and interacting with one another. It's an easy way for them to share resources and help each other out.

Blogging: Having students post their work in blogs is a great way to allow student to showcase all their hard work or works-in-progress. Students can help each other out by posting comments and suggestions for each other. Because students work will be publically posted you are likely to get higher quality work from them too.

Using Podcasts: A podcast, or generically net cast, is an episodic series of digital audio or video files which a user can

download and listen to. Podcasts make great learning tools for students especially when it comes time for studying. You can easily create and post podcasts for students who want to review or were absent so every student has the opportunity to soak it all in.

Video Conferencing: Using video conferencing technology can allow students to travel the world from their classroom, speak with virtual guest lecturers, and make friends and interact with others in different countries.
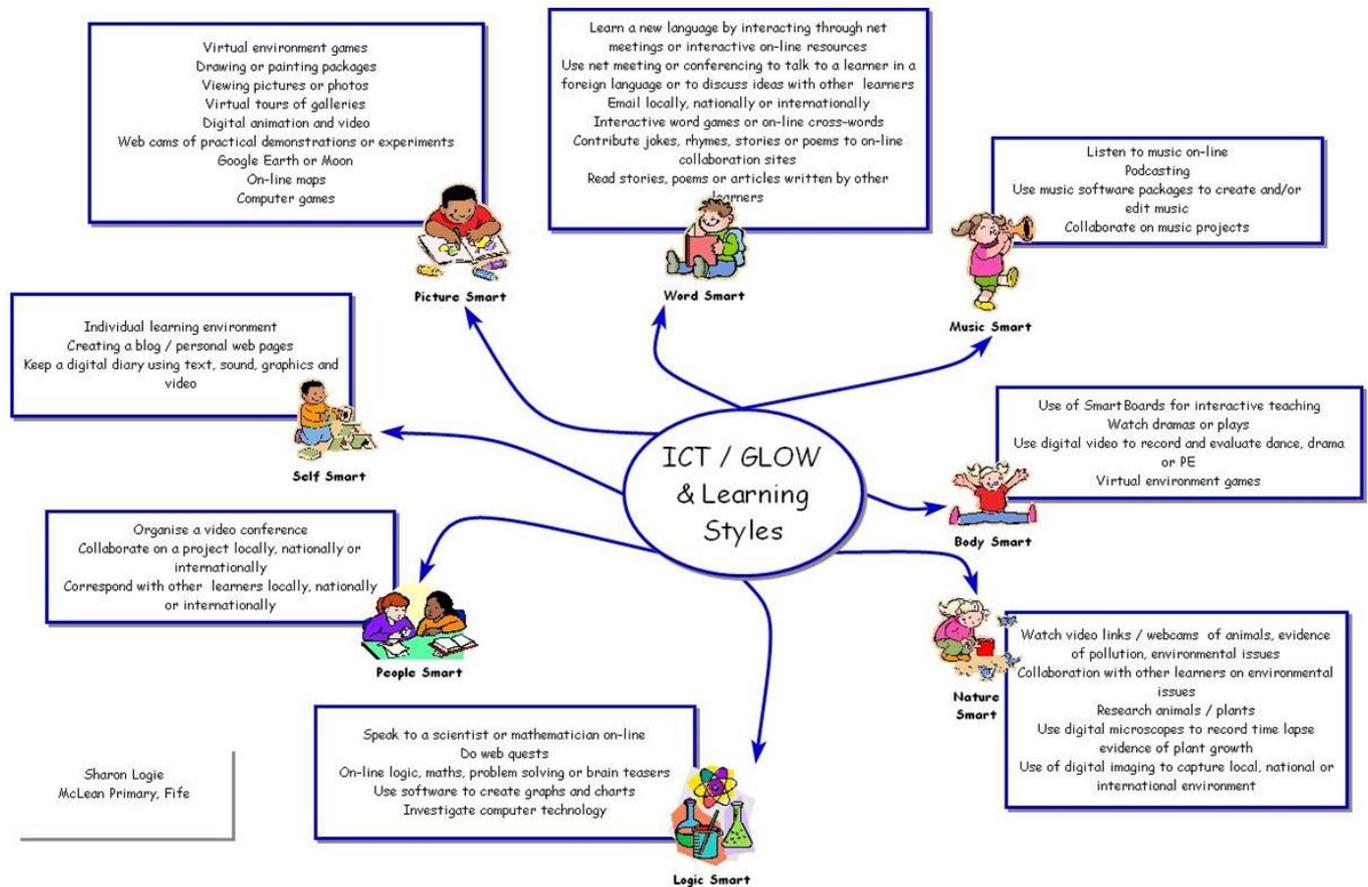

Figure 1: Ways by Which ICT can Make Learning Fun

B. By Facilitating Procurement of Necessary Basic Skills

Students develop basic skills in four main areas of development viz:

- Cognitive Development: This is the child's ability to learn and solve problems.
- Social and Emotional Development: How the child interacts with others.
- Speech and Language Development.
- Motor Skill Development.

With selected apps/software, and with the use of the internet, students can be prodded to increase their problem solving skills, made to interact with other students/people and form bonds, learn and master many languages etc.

C. By Enhancing Education System Management

There are so many ways ICT can be used to enhance management systems.

Student Administration: Usage of electronic media by students to apply for admissions, Usage of computers for student registration / enrolment, Availability of time table / class schedule in electronic form, Usage of computers for maintenance of attendance of students, Communication of academic details of students to their parents / guardians through e-media, Usage of e-media for notifications regarding hostel accommodation, Usage of e-media for notifications regarding transportation etc.

Staff Administration: Usage of computers for recruitment and work allotment of staff in the institution, Automation of attendance and leave management of staff members in the institution, Usage of electronic media for performance appraisal, Communication with staff using e-media, e-circulars from the institution regarding official matters, e-kiosks are available in the institution.

General Administration: Usage of e-media for scheduling / allocation of halls for examinations, Dissemination of

information in the institution through e-kiosks, Usage of e-media by students to apply for university examinations, Usage of e-media for the processing and display of results of students, Facility for students to make fee payments electronically.

IV. RESULTS

Figure 2 shows the summary of influence of ICT on Education; while Figure 3 is a histogram showing the impacts of ICT revolution on educational system.
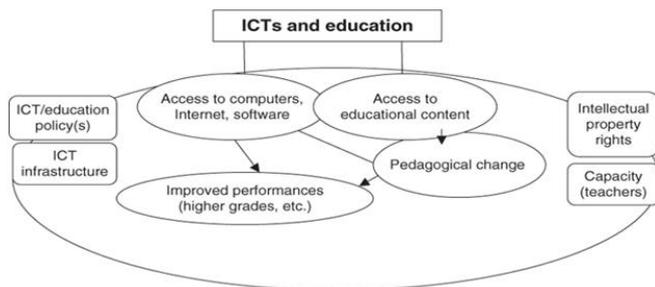

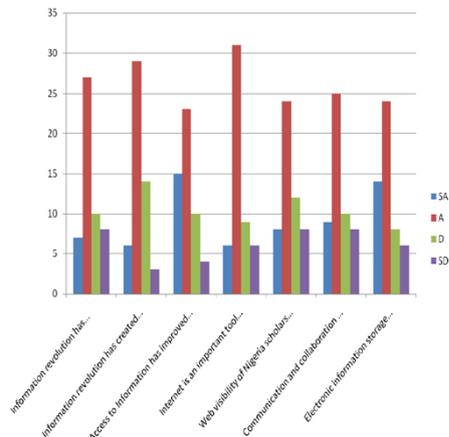**Figure 2: Summary of Influence of ICT on Education**

Figure 3: A Histogram Showing the Impacts of ICT Revolution on Educational System

The table 1 shows an overview of the impact of Information and Communication Technology in Educational System.

Table 1: Impact of ICT Revolution on Educational System

Impacts of information revolution	SA	A	D	SD	(X)	Rank	Decision
Information revolution has encouraged shift from traditional method of teaching and learning.	7	27	10	8	2.63	6	+
Information revolution has created opportunity for computer assisted instruction CAL.	6	29	14	3	2.73	3	+
Access to Information has improved remarkably through Information revolution.	15	23	10	4	2.94	1	+
Internet is an important tool in accessing information prominent.	6	31	9	6	2.71	4	+
Web visibility of Nigeria scholars is becoming more prominent.	8	24	12	8	2.61	7	+
Communication and collaboration among Nigerian researchers are becoming more effective.	9	25	10	8	2.70	5	+
Electronic information storage and retrieval has improved teaching and learning.	14	24	8	6	2.84	2	+

V. CONCLUSION

ICT plays a crucial role in many aspects of daily life both in and out of the workplace. We must ensure our pupils and workforce of the future, embrace the latest technology to prepare them for life outside and post-school.

From the comparison and study done earlier, it can be seen that ICT has greatly enhanced learning, and it can be deduced that it holds much more prospects in future. Teaching is much more fun these days, and the impact is much better using ICT.

If more schools can incorporate ICT into their systems, we could have students of the present generation learning at a faster rate, and hence improving level of impact education generally has on the world. This can lead to better teachers in future, smarter employees at the workplace, more inventions, and most importantly – a better world.

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