

Educational Opportunities in The Use of Modern Technologies

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Abstract

The importance of technology cannot be underestimated. The world is a global village and everything seems to revolve around technology. Technology is the application of scientific methods, tools, techniques to solve problems, achieve fast goals, improve efficiency and enhance human efforts. It covers many aspects of human endeavors: communication, automobile/transport, healthcare, education, computing, engineering, food industries and so on. These areas offer opportunities for anyone who is knowledgeable in the application of modern technologies. This article tried to look at only some aspects of modern technologies used in education such as: Interactive board, Multimedia Communication (ICT), Online courses/Virtual classes, AI, to see how these relate to educational opportunities. Education briefly put is formal or informal training of an individual. One of the goals of education as stated in the Nigerian National Policy of Education, (2014) Section 1 Paragraph 1 art 5 'the training of the mind in the understanding of the world around and the acquisition of appropriate skills, abilities and competences both mental and physical as equipment for the individual to live in and contribute to the development of his society'. This aspiration has been greatly enhanced by modern technologies. This write - up also observed that technology offers a lot of opportunities such as improved skills for instant and future jobs or tasks, personalized learning, quick results and assessments for both learners and teachers, the use of games to improve learning skills and development of good communication and global effectiveness, it also has flaws such as too much dependency on modern technology to the detriment of self-effort, cybercrimes and others. However, it suggested a way forward; the need to strike a balance so that the learner has a wholistic development.

Keywords: Interactive board, Multimedia (ICT), Online courses/Virtual classes, AI.

Introduction

Modern technology offers a lot of educational opportunities that can enhance human learning outcomes. The educational sector has been reshaping digital revolution. Teachers are therefore expected to effortlessly integrate this technology into their lessons, this will help to make learning more participatory in nature, involving, and appropriate to the learners' needs. This of

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course includes utilizing online resources, software, and applications that improve the learning experience and outcomes. With the fast and dynamic educational landscape of the 21st century, teachers' roles and responsibilities have grown beyond traditional limits and methods. Apart from the focal reason of imparting knowledge, a teacher also has the duty to meet the demands of modern learners due to global changes. This adaptation is not only necessary for those seeking jobs in the educational sector, but who also are interested in making a permanent and long-term impact on society.

Education

Education is one of the largest world industries without which there would be no major academic threads; such as science, arts, social sciences, technologies, engineering and humanities. It is important in the development of human capital and society and for the sustenance of humanity. It remains the only catalyst for achieving goals set by government, ministries and industries. Oyebisi (2017, p.1) noted that one who is said to be literate in the 21st century is one who can read, write and has practical skills in information and communication technology. Hence, without the necessary skills and knowledge it will be difficult for the individual to wade across the turbulent society. Oyebisi, (p.11) talked about EIV/AIDSs (educational, intelligence virus) as a psychological micro element that causes infection to the moral and intellect of an individual learner that can result to AIDS2. According to him, AIDS2 (academic, immune, deficiency, syndrome) is a psychological illness that attacks the moral and mental development of the learner, rendering it to malfunction thereby, causing damage to intellectual capability and which in turn affects national development. When the individual fails to function to his full ability, the benefits society will gain will also be reduced. National development depends on human capital to grow.

Education therefore is a channel by which one is equipped to use both mental, moral and physical skills to cope with the challenges in society. Thus, Fafunwa, B. (2004) viewed education as an aggregate of all the process which a child or adult uses to develop abilities, attitudes, and other forms of behaviour which are of positive value to society. Therefore, transformation of the individual and society are the positive outcomes of education.

Duties and Responsibilities of The 21st Century Teacher

Facilitator of Learning:

An online article (2024) on the duties and responsibilities of the 21st century teacher noted that in the past, teachers were seen as the sole possessors of knowledge. With the advent of technology, information is not restricted, it is at everyone's fingertips. Therefore, one of the primary roles and responsibilities of a teacher in the 21st century is to guide in the learning process. Teachers guide or direct students to think critically, analyse, process information, and arrive at conclusions, rather than just memorizing facts. Okpe, B. A. & Nnaraonye, O. G. (2017, p.152) noted that achieving qualitative education is a herculean task. All stakeholders, need to identify the different roles that could be played and work as a team to attain this goal. Any of the stakeholders could be a stumbling block to attaining the set goal, if they fail to participate or collaborate effectively.

Career and Future Guide

The multifaceted plethora of career choices available today, place students often at crossroads on what to do. Teachers therefore, with their profound experience and knowledge, have to guide and help students, align their passions, skills, and future aspirations with whatever choices they make. Therefore, the 21st-century teacher's role transcends traditional teaching. Those seeking jobs in the educational sector must recognize and adapt to these expanded roles, of imparting and guiding learners; emphasizing both academic excellence and holistic development. These teachers take into cognizance the needs of the modern world, and hence use their expertise to groom the learners.

Modern technologies and their educational opportunities

Interactive boards / interactive white board (iwb)

Individualized learning

Interactive Boards in educational systems help to facilitate teaching and learning. Interactive boards like other technologies offer opportunity for personalized learning. It offers opportunity for both teacher and learner to study vast materials on their own, and interact with the digital world using touch, or gesture. It enhances interactive learning. Teachers source materials and teach students using these boards. The students themselves are free to access materials and can use this to do a lot of things. Teachers can provide immediate feedback to assessments. It can be used for tasks.

Active and Engaging Learning

Interactive boards make learning more participatory in nature. Interactive boards can also use multimedia, such as videos, images and audio. Group works can be given using interactive boards and these enhance collaborative efforts which help motivate students in their studies, because they can search for materials together and obtain solutions to their quest. The visual items also help them to understand better the complex issues they are dealing with. This will help them find solutions to the puzzles in their tasks.

For the teacher, interactive board also helps increase productivity. The teacher can plan effectively and deliver the lessons planned in a better way. It helps them incorporate various teaching methods such as group work, guided tasks, student – centered teaching and so on for better outcomes.

Multimedia (ICT)

Means for good and effective communication

Communication is undeniably the most critical skill for an educator because it underpins (buttresses, supports, reinforces) all aspects of their work. If you cannot communicate well, the students will fail to get the message you intend in your teaching or take the wrong message. It is the same with the learner who fails to communicate effectively. Having effective communicative skills entail (linguistic competence: phonological, grammatical and semantic knowledge as well as interactive ability). Teaching requires clear, concise, and engaging communication skills to convey complex ideas. Eke, J. & Sule, N. (2020) noted that for effective communication, rules of communicative must be followed: what to say, when, what is linguistically correct, taking turns in speaking to avoid chaos... (p.6). rules of engagement are very important.

Technology enhances global communication. This is observable in the use of internet facilities, cell phones, multimedia technology, Facebook, Twitter, WhatsApp, ChatGPT and soon. The connectivity it offers cannot be thrown overboard. The world is more connected than ever. One can stay in the comfort of the room, and answer calls, send messages across the world, give lectures through zoom, video calls, more than ever before. During the advent of Thuraya phone, one has to climb the hill, or go where the network is possible even in the night to make calls. This is no longer so. During COVID 19 many lecturers carried out remote teaching using zoom. Technology has made it possible for communication network providers to facilitate global connectivity, collaboration and information sharing. Zoom, YouTube, Twitter, Xender, Messenger, Instagram and other communication networks can be used to connect, share knowledge and other skills.

Aid to education

The role of multimedia in enhancing education cannot be over looked. There are so many things, teachers and learners can do with multimedia applications. Multimedia has the capability of combining audio visual as well as graphics texts and animation, music, print, chats, photos to produce simulated/virtual learning and this helps the learner to be actively engaged. This is noticeable with a lot of remote/distant classes. One can start classes with international institutions online while getting visa documents ready. There are online certificate courses on the internet for people to undertake. Hatfield (1996: p.223 - 228) noted that multimedia instructions have been effective for so many areas of endeavour such as military, medicine and so on. This is because multimedia can combine so many aspects to produce simulated learning and environment. While computers ought to be an important tool in the learning environment, it is sad that so many schools still cannot boast of having them in their institutions. A lot of things can be achieved through the knowledge and applications of technology. A learner who knows how to use computer effectively will be able to use it for various activity; statistics, research, graphics, designs, lectures, accounting and so on. This learner who is versatile in such skill will be able to get jobs anytime and anywhere. It makes life easy and less stressful.

Gamification in Education

This is the use of games and mechanics in teaching and learning. To help support learning. It acts as a form of motivation and makes learning interesting especially weak learners. The teacher can ask questions and award points and badges to the student who got the highest score. Learners' names may be displayed on the board for some days or throughout the week. This helps to boost the morale of the learner to do more. It can act as a means of competition, because others may want to have their names displayed. The teacher can also decide to use different colours for grading or ribbons to indicate points. Therefore, this method or approach moves from the traditional style to a more interactive approach and the classroom will be fun to come to.

There are also a lot of games such as quiz, role – play and some found on the internet that help build skills. These are educational games designed to teach specific subjects or skills to the learner. Scrabble games, card games of various sorts, water colours, bubble shooters, monopoly, chess, gig-saw puzzles and so on. The games are used to promote deep learning strategies and understanding, recall, relaxation, strategies/strategic planning, focus, problem solving, grammar, spellings, critical thinking, dealing with stress, collaboration, critical thinking, creativity and many others.

Technology As a Support to Management

The teacher can leverage digital tools, such as classroom management software, to monitor and manage student behaviour. CCTV for example can be used to monitor what happens in the environment and to keep check on a lot of things. This is an outcome of technology. One could switch it off and on as desired to put things under check. Grossman, P. L. (2008) noted that teaching is the foundation of society's progress and development. Effective teaching plays a vital role in shaping the minds of future generations, fostering intellectual growth, and preparing students for success in various aspects of life. The growth of the society depends on the effectiveness and quality of the teaching the learners received. Teachers can also use games, interactive board to assess the learner, score, reward and encourage them. A lot of technological tools are on the net, and some are sold in the market as a means of enhancing learning and aid to management.

Online Programmes

So many people are engaged in online programmes due to technology. In the comfort of one's home, classes are attended, through zoom, or virtual means. Many people earn certificates on-line, therefore enhancing knowledge. The period of laissez faire (non - interference/ compliance), is no longer obtainable except one chooses to be lazy. The internet abounds with so many programmes for those who want to study, whether young or old. Therefore, modern technology offers a lot of educational opportunities that can enhance human learning outcomes. Information sharing and transfer of potentials take place with on-line programmes, or distant learning. Here in Nigeria so many are registered with the Open University of Nigeria. The courses are mostly on – line and at weekends. It is meant to service a large number of Nigerians who want to be educated but are at work and who depend on their salaries to fend for themselves and also be educated. These classes are virtual and examinations are mostly virtual. So then, if one has no literacy as far as ICT or technology is concerned, it will become difficult for the individual to cope with these online programmes. The era of paper and pencil is also fast winding up. Teachers are constantly asking to integrate ICT into the mainstream classroom, because its impact cannot be over emphasized.

Remote learning environment enable real – time interaction. Students interact with their lecturers, colleagues and reading materials and this form of learning will encourage holistic growth. The use of technology helps develop skills such as digital literacy, focus, problem solving analytical mind and critical thought.

Artificial Intelligence

Artificial Intelligence is a boom in the technology field. Yann LeCun. (2024) online article noted that Artificial intelligence is the computer system simulation/imitation of human intelligence processes. AI has the ability to improve students' educational experiences in both development and learning. Since Artificial Intelligence (AI) has come to stay as a form of technology, it is also necessary to know how to use it effectively. A lot of students and teachers make use of AI to get tasks done, get quick solutions to questions and other aspects of learning.

The Role of AI in Enhancing Education

Meta, (2024, 16, May: 8.49 pm) AI language model, chat noted that AI in education refers to using technology to address cognitive, physical, academic, social and emotional factors that impact learning. Examples of AI soft wares in education for students include grammar checking software, text-to-speech platforms, ChatGPT tool which is a language model and uses prompts and acts in a human like manner, the individual asks it questions or clarifications just like AI and it generates the required answers. Others are flash card software. Examples of AI in education for professors include plagiarism detection software, lecture transcription platform, setting students assessment questions and automatic grading tools. The teacher can use AI to set assessment questions for students and also asks it to prompt possible responses to the questions. Educators can take advantage of AI-powered questions which is time-saving, while retaining control over course material. The teacher however can ensure that the course content is adequately covered so as not to leave gaps on the areas taught. Similar to machine learning in education, AI in education allows faculty to capture and analyze valuable data that can help inform future lessons and offer individual outreach to struggling students.

Therefore, AI in education is the process of integrating and applying Artificial Intelligence (AI) technologies within the classroom to enhance teaching and learning experiences. This multifaceted approach leverages AI algorithms (set rule and procedures) and tools to analyze and interpret student data, personalize educational content, programme administrative tasks, and provide adaptive feedback. Using AI in education, allows instructors to identify struggling students and provide the tailored support required to minimize barriers to success. The aim of using AI in education is to enhance the learning experience, improve the effectiveness of instruction, and provide learners with more personalized and efficient education. You may improve training and development outcomes by utilizing the knowledge to improve your courses, and content. The field of AI is developing quickly. It has also disruptive effects, which have already affected the educational system. The potential of artificial intelligence (AI) in education must be further examined, and developers and researchers must endeavour to resolve any issues that may arise as AI continues to advance and be included in the learning and development system.

AI Roles in Education and Development

AI has quite a number of positive impacts in education and development of the human capital and society. Yann LeCun. (2024) in an online article on artificial Intelligence, gave some Roles of Artificial Intelligence in Learning and societal development.

Intelligent Tutoring Systems: the instructor can use AI-driven tutoring programmes to give students individualized or one on one feedback and direction as they progress through the course material. Furthermore, these systems can evaluate student performance and change or modify the curriculum to meet their needs.

Adaptive Testing: Artificial Intelligence in learning and development can generate adaptive assessments that modify the level of difficulty according to the learner's progress. Therefore, teacher is at ease since he will only feed in what he has taught, and give instructions to AI to set the assessment as required. This will help the teacher to assess the learner's knowledge and skills with greater accuracy.

Personalized Learning: with AI it is possible for every learner to have a customized or individualized learning experience. This can be accomplished by evaluating the student's performance and customizing the course material or curriculum to suit their interests and requirements. As a result, the teacher can pay particular attention to slow or weak learners. They can also develop course contents tailored to meet their specific need and level.

Predictive analytics: This means AI in learning and development has the ability to diagnose or forecast student's performance, spot out learners who are at risk/danger, and offer them individualized interventions that will help them get ahead.

Benefits of AI for students

The following therefore, can be the benefits of artificial intelligence (AI) for students.

Idea & content generation. It gives the learner idea of what is taught and can develop the curriculum content to suit the needs of the individual learner bearing in mind the curriculum that needs to be achieved.

Answering student questions. Students are able to get quick answers or on the spot answers to questions imputed into chat AI.

Analysing student performance and tracks students progress and identifies areas that need improvement.

On the spot analysis of students' performance, so that teachers are better equipped to reevaluate their teaching and curriculum.

Time saving. It offers quick or immediate response to questions in real time.

Motivating and engaging. It acts as a good motivation for the learner, who seeks to know and makes one very interested in the task. It is also very engaging.

Challenges And Limitations

In as much as there are great benefits to digital technology, however, so many people still cannot have access to them. There is so much digital – divide which results to unequal access to technology and the internet. One may ask, how many schools have access to computers, flat screens or even internet access materials? So many students come out of school and cannot manipulate the mouse, yet they did internal and external and other computer exams. The same student can keep browsing throughout the day but cannot use the computer to access materials. Too much dependance on technology, for example; on AI or ChatGPT can result to lack of initiative and taking personal time to study. This can create “brain freeze”. The individual can no longer think for himself since he relies on generative technology to do everything for him.

Again, Technology in as much as it is a welcome development has led so many into cybercrimes. A lot of people are ‘yahoo. Yahoo’, they defraud people through the use of the internet or other forms of technology. Other flaws can also be wasting of time; by dwelling too much on multimedia usage, surfing, pornography, laziness to read by depending on AI to get assignment done. AI mimics or simulates the human person and one can get false impression about an issue posed especially in narrative. Not everything given by AI of ChatGPT for example is a hundred percent correct hence, caution must be used in handling technology just as is also the case in the use of computer. What you input into it is what comes out, as the parlance goes “garbage in, garbage out”.

Way Forward

To address these challenges/flaws, students must be well educated regarding the pros and dangers as well as criminal tendencies of multimedia through cybersecurity to ensure their safety and data protection. Constant training and conscientization on the need to discipline self and set priorities right, so as not to be wrapped in the dangers posed by multimedia consumerism, but strike a balance and harness the positive part it presents for the growth of human capital and societal development which finally impacts the globe. The guidance of the teacher hence cannot be overemphasized to lead the learner to achieve the best he/she could in the fast-growing technological environment to achieve the desired goal.

Conclusion

The benefits of technology cannot be underestimated, from enhancing human capital, to learning outcomes for both students and teachers. It offers the learner a lot of opportunities for instant jobs and future. The write up has tried to present some technologies that are used in educational system that can benefit the system such as interactive board, multimedia outfits used for good and effective communication and global connectivity, on-line courses, and AI. These technologies offer very good opportunities in helping to develop skills such as digital awareness, individualized learning, collaborative and interactive classroom, ease of work, immediate feedback to learner as well as the teacher about methods and learner. They help develop critical thinking, digital literacy, as well as problem solving skills for the individual. They help to track students' progress and identify areas that need improvement. Games are also used to deal with stress as a means of relaxation, strategic planning, spelling, mathematics, awards and merits for good efforts and so on. AI on the other hand is a technological tool which has the potential to improve students' educational experiences and promote growth in both development and learning. When the learner is skilled with modern technological applications, it offers the individual ample opportunities for multiple jobs and personal improvement. Finally, the individual must be conscientized to know that as much as technology offers positive outcomes, it also has its negative effects. Therefore, one must find a balance in its utilization.

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