International Journal of Research Publication and Reviews

The Importance of Educational Technologies in Economics Classroom: The Nigeria Perspective

Jolaosho, Ramon Adisa[1]

[1]Department of Social Science Education, University of Nigeria, Nsukka

Abstract

The paper centered on various educational technologies that can be used in the teaching and learning of Economics. With the use of educational technologies such as the Google Classroom application, YouTube videos, virtual reality, Socrative, Edmodo, Kahoot, Classdojo, and blockchain technology, students of Economics will find it easy and convenient to acquire knowledge in an Economics classroom. Nigerian teachers of Economics should understand the significance of utilizing various educational technologies in teaching various Economic concepts. Topics like demand, supply, production costs, and others can be well explained through the use of various educational technologies. Furthermore, in the event of a pandemic outbreak, educational technologies can be used to prevent virus spread by ensuring that students join the online classroom from their rooms.

Key words: Educational technologies, Kahoot, Classdojo, Blockchain technology and Socrative

Introduction

Technology is now shipping the future of education all over the world because we are now living in the knowledge based global world where there is a rapid advancement in science and technology. That is not to say that technology will determine the future of education and its success; rather, it will determine how educators in the twenty-first century may use technology to their advantage in the classroom. Technology has become increasingly important in Nigerian education at all levels, while educators in the country's higher education institutions are struggling to choose which of the numerous available technology tools best fits their classroom practices. Educational technology is the application of teaching and learning technologies into the classroom to facilitate learning and quick understanding of the students. Educational technology involves the production, design, evaluation, analysis, implementation, and running of educational systems and other learning environments which leads to learning and development of mind, body, and spirit (Song & Kidd, 2010). Graham (2006) believes that educational technologies are often incorporated in a classroom setting to allow learning to be personalized and independent for the learners. There are various forms of educational technological applications such as Edmodo, Socrative, Kahoot, Google classroom application, Classroom response system, YouTube instructional application, Ted-Ed, CK-12, Classdojo, Edu clipper, Think link, Projeqt, Story Bird, and Animoto.

Economics is the social science that analyzes the production, distribution, and consumption of goods and services (Harper, 2001). Economics being a subject with two branches namely microeconomics and macroeconomics in which microeconomics examines the behaviour of basic element in the economy and macroeconomics analyze the entire economy and issues affecting it including unemployment, inflation, economic growth, and monetary and fiscal policy. The importance of Economics in any educational system especially in academic achievement cannot be over emphasized because its serves a useful purpose in modern life. It gives fact and shows what maybe expected to be the outcome of certain lines of conduct. It helps us to decide which of several alternatives to choose. This broad course has to be well taught by the teacher through modern teaching technology such as YouTube instructional package in order to facilitate quick understanding on the part of both the male and female learners.

Various Educational Technologies that can be Used in Teaching and Learning of Economics

1. Edmodo Educational Technology

2. YouTube Video

3. Virtual Reality

4. Google Classroom

5. Kahoot

6.   Socrative

7.   Classdojo

8.   Blockchain Technology

Edmodo Instructional Technology

Edmodo instructional technology is an academic website designed to facilitate teaching and enable students of all subject including Economics students to participate actively in an online learning. Hourdequin (2014) regards Edmodo instructional technology as an academic platform used by over 81 million people so as to give way for two-way interaction between the teacher and the learner. In the view of this study, since the introduction of Edmodo in 2008 by Jeff O` Hara and Nick Borg, the platform has been widely used by teachers, students, schools and parents to foster learning. Al-Kathiri (2015) believed that Edmodo was designed as an educational platform with the aim of fostering meaningful meaning. Edmodo is an interactive platform that is almost the same with Facebook interface (Hankins, 2015). Holland and Muilenburg (2011) asserted that students within k1-12 perceive Edmodo instructional technology to be a clearly learning platform, which the same attribute cannot be given to Facebook.

Edmodo instructional technology allows Economics teachers to upload notes, videos, assignment, quizzes and share links on the websites with students and parents that which to participate in the online classroom. Edmodo instructional technology gives opportunity to Economics students to form groups and work on a task given to them by their teachers collaboratively (Curran-Sejkora, 2013). Edmodo instructional technology allows for bi-directional teacher-learner interaction which is not the same with other platforms such as Facebook and Whatsapp. Thus, it could be effective in teaching Economics at senior secondary school level. Mills and Chanra (2011) asserted that positive impacts of Edmodo instructional technology have being associated with Economics students` performance and also students-teachers relationship. In addition, Economics students can perform many virtual classroom activities just like in the face to face classroom environment. The potentials inherent in the use of Edmodo instructional technology suggest that it is an effective technology for use especially when emphases is on minimizing contacts as being witnessed as a result of the outbreak of Covid-19 pandemic worldwide. Edmodo instructional technology will not only be useful in a period of covid-19 alone but also after covid-19.

YouTube Videos

The YouTube hosting service constitutes a social networking website on which practically any individual or organization with internet access can upload videos that will be seen immediately by wide audiences. YouTube is one of the online materials that can be embedded in Economics traditional classroom situations. These days YouTube has become more popular, especially among adults because it serves as a social networking site. YouTube was launched in 2005 as a place where individual could record and share their own videos with little or no cost (Terantino, 2011; YouTube, 2013). This website provides learners of Economics with authentic situations and with everyday clips that help them to get better understanding of various Economics concepts. As many researchers asserted that student including those of Economics get positive indicators when they watch nature and real life videos (Maness, 2004). Watching video in YouTube will help Economics students to memorize the events more easily. This websites provides learners of different subjects, particularly senior secondary school Economics, with authentic and with everyday clips that can help them to get better understanding of Economics concepts.

The use of YouTube videos in Economics classroom will provide students with good knowledge and understanding of their lessons. Additionally, learners of Economics use YouTube videos as a learning tool that helps them in clear understanding, and after class they can explore the topics that were studied in the classroom.

Virtual Reality Technology

Virtual reality technology is an educational technology that can deliver both affordable and interactive learning experiences that have garnered the interest of educators, including teachers of Economics in senior secondary schools in Enugu State. Nothing is understood, however, about the degree to which technology ultimately enhances student participation or performance (Lund & Wang, 2019). The computer-created alternative to physical reality is virtual reality. Computer programs present a visual world through a video headset that can, pixel-perfectly, replicate the real world-or show a totally unreal world (Varnum, 2019). Virtual reality is different from augmented reality, which enhances a real-world, real-time image with computer-generated content, such as pictures, animation, videos, text, and sound, viewed through a mobile phone with good camera (Lund &Agbaji, 2018). Specht, Ternier and Grella (2011) believed that mobile technology advancements are now making it possible to use Virtual reality (VR) technology for learning. This technology makes it possible to improve our senses (vision, audio, and touch) with simulated or naturally invisible data superimposed on top of the physical world through digital means (Azuma, 1997). Like 3D virtual environments, virtual reality provides multiple degrees of immersion and engagement that could help to involve Economics students in learning activities. Virtual reality ability in education, however, remains unexplored and there are a small numbers of studies in Nigeria examining the influence of virtual reality on students` performance.

Science fiction has always played a part in not only predicting our scientific and technical directions on the technology that can be used to facilitate learning or make learning easy, but also advancing them. Gibson foresees a full virtual universe where users can plug in and be transported to a location where the usual limits of physical existence are absolutely nullified. The boundaries are only provided by the limits of imagination. Rheingold (1991) perceived virtual reality as a magical window into other worlds, from molecules to minds. One might hold on to them, bond them together, twist them in three dimensions, and watch from all angles a chemical reaction develop over time just like the way a student's of Economics can watch market

activities from the classroom without necessarily being present at the market. The potential for this form of immersion in virtual worlds is very persuasive for use in educational settings (Crouch, 2014). The experience given by any technology in virtual reality must have two features: immersion and navigation (Rheingold, 1991). Immersion refers to the ability of technology to produce the sensation of being distinct from your waking life in a virtual world. The more immersive an experience is, the more difficult it is for the user to separate it from their normal sensory information. Navigation, on the other hand, refers to the user's ability to navigate around and control objects within that environment. These characteristics are definitely found in commercial video games to varying degrees, usually with the newest games providing the highest levels of one or both.

Since Economics students can through virtual reality technology navigate around and control objects with that environment, there is no need again for a teacher or secondary school management in Enugu State taking students for an excursion in an era of pandemic. What to be seen on the excursion or field trip could be navigated to the classroom and thereby preventing students exposing to the crowded environment that will be unsafe for any type of pandemic. There has been a viral disease know as corona virus but popularly called Covid-19 outbreak in a community in China known as Wuhan in 2019. The outbreak of that pandemic posed a significant threat to global public health and economy and dragged many nations of the world into recession which Nigeria is not left out. That pandemic also made all the state government of Nigeria including Enugu State to lockdown all the schools in every local government of the state to control the spread of the virus. Despite the reopening of schools in late 2020, social distancing is still very effective in Nigeria and people are still abiding by it. As a result of the outbreak of the pandemic, students could not be taken on excursion again so as to prevent them from contracting the deadly virus. If teachers in the country (Nigeria) are use to various educational technologies discussed in the paper, Nigeria students would not have been at home in the era of the pandemic and this show the important of the above listed technologies in Teaching and learning.

With the aid of virtual reality, selected contents in economics that would require going on a field trip could be accessed in the classroom. For instance, no need of taking students to the market as the market activities can be accessed in the classroom using virtual reality. Topics such as transportation, money, banks could also be accessed using virtual classroom. What it entails to achieve all these in the classroom is just individual phone and virtual reality technology which cost around six thousand five hundred naira (#6,500) in Nigeria market. With virtual reality technology, all what is to be gained on field trip would be gained in the classroom and thereby improve students` performance in Economics since the videos are on economics contents.

Google Classroom Application

Google classroom is one of the applications on Google that can be used in teaching and learning. Since Google itself is a potential for teaching and learning in the sense that it was built on a special function that gives room for social, pedagogy, and technological affordance(Wang et al., 2012), then it was not a surprise having an application of such on a search engine that can strictly be used for only teaching and learning. This application (Google Classroom) was added to Google application in 2014 and since then millions of teachers and learners in various fields of study have been using this applications. Google Classroom connects Google Drive, Google Docs, Google Sheets, Google Slides, Google Forms, Google Sites, Gmail, and other Google products to help schools become paperless (Dara, 2014). Lauren (2015) asserted that as time goes on Google calendar was added to Google Classroom to help with assignment due dates, field trips, and class speakers. Google classroom has numerous features such as assignment, grading, communication, originality report, archive course and mobile applications. No wonder Emre and Kaur (2017) regard Google classroom application as a blended internet learning platform meant for educational providers and educational institutions that focuses on creating, streamlining, sharing, and grading continuous assessment and other class materials in a paper-free way. Kgalemelo (2018) sees the Google Classroom application as a zero-free web-based learning application or internet tool that is used for collaboration among teachers and students.

The present study regards Google classroom application as the application of online educational technology in teaching and learning. They are various benefits to be derived from the use of Google classroom in teaching such as making a classroom to be paperless classroom since all the learning activities can be carried out on the application without the need of writing down anything. Google classroom can also be access from any computer using any browser such as Google chrome, uc browser etc or mobile phones. Of the importance of Google classroom is exposing of students to online learning and improving the computer skills of the students. Such benefits that can be derived from the use of Google classroom are time saving, fostering of communication between the teacher and the students, differentiating instruction for learners, giving room for students` engagement and provision of feedback. Kgalemelo (2018) asserted that Google Classroom allows Economics students and teachers to share announcements, assignments, notes, and turn in assignments and projects. Google Classroom allows Economics learners to learn at their own pace, without being pushed by others, and with no time constraints imposed by the learner in conjunction with web access (Mafa and Govender, 2018).

Socrative Educational Technology

Socrative is a response system application that enables teachers to engage students using any form of computer system. Socrative educational technology application gives teachers the opportunity to administer a quick pulse check and quiz and grading at the speed of acquiring knowledge. Awedh et al. (2014) asserted that socrative technological application encourages students to discuss ideas, give opinion, and debate point of view critically. There are three options for users of socrative educational technology application which are socrative free, socrative pro for k-12 teachers and socrative pro for higher education and corporate. Among all these three only socrative free does not required subscription fee from a teacher but have limited features as only one activity can be launched at a time. To launch more than one activities at a time on socrative educational technology application then a teacher have to pay $99.99 as yearly subscription fee unlike Google classroom application and YouTube instructional application

whereby a teacher pay zero naira has subscription fee and also enjoy more than one activity. Unlike Google classroom application and YouTube instructional application that gives teachers the opportunity to upload video on a particular topic, socrative educational technology application did not have such space for video uploading for learner use despite Maness (2004) asserted that many researchers findings shows that students get positive indicators when they watch nature and real life videos. Of this various forms of educational application that show videos in form of game is Kahoot educational application.

Kahoot Educational Technology

Kahoot is a game-based learning application that is used in schools and other educational institutions as educational technology. Its learning games, known as "kahoots," are multiple-choice quizzes created by users that can be accessed via a web browser or the Kahoot application. Digital games that can be used for education are rapidly emerging, owing to the fact that young learners are very much engaged with technology and that education can no longer ignore the notion that games can be one of the platforms of learning. Sabandar et al (2018) asserted that Kahoot is a well-known game-based learning tool that is easy to use for both educators and students. Sabandar et al stated further that Kahoot game application came into existence through a partnership between Johan Brand, Jamie Brooker, and Morten Versvik and the Norwegian University of Technology and Science. Kahoot application entails for features which are Jumble, Quiz, Discussion and Survey that the user can used depending on its needs. Kahoot application also comes with a free application that makes it more adaptable for both educators and digital learners. Licorish et al. (2018) found out in their study that kahoot application game increases students` attention and focus, interaction and engagement, learning and retention of knowledge and fun and enjoyments. Upon all these benefits that Kahoot application game possesses it could still not merge Google classroom application and YouTube instructional application because both did not have limited numbers of characters like Kahoot question. Since Kahoot application game have to be played in the classroom, internet connection can be a great threat to its use in the classroom unlike Google classroom application and YouTube instructional application that can be use both in the classroom and outside the classroom. Another form of educational technology application that can be used in teaching and learning aside from Edmodo, Socrative and Kahoot is Classdojo.

Classdojo Educational Technology

ClassDojo is an educational technology application that can be used in Economics classroom to correct learners` social behavior that has been regarded as a problem in the society. It's unsurprising that technology can be used to get students involved, inspired, and engaged in designing and following their classroom discipline plan (Chiarelh et al, 2015). Chiarelh et al. asserted further that ClassDojo was created to help the classroom teacher keep up with specific behaviours on each individual student, both positive and negative. ClassDojo is an online program that focuses on rewarding and punishing students for positive and negative acts. Teachers enter the names of their students into the system, and students choose an avatar (monster) to represent them. The curriculum comes with a list of pre-selected positive and bad habits, but teachers can change them at any time. When a student exhibits positive conduct, the instructor taps their name and the name of the behavior, normally on a mobile screen. As a result, the student receives a bonus point. However, when a student engages in unfavorable conduct, the instructor taps their name along with the unfavorable behavior. Colao (2012) asserted that company reported that teachers using ClassDojo reported a $45\% - 90\%$ increases in positive behavior and a $50\% - 85\%$ decrease in incidents of negative behavior. Among the features of classdojo is the ability of a teacher to send a report to parents about the positive and negative behaviour of the child. Classdojo also gives room for teachers to take class attendance for those on roster through the application. Teachers can easily send weekly report to parents about their student positive or negative behaviour through the help of classdojo. Burger (2015) findinga shows that Classdojo was fun and engaging, effective in managing classroom and good for positive reinforcement, and lastly encourage students to get coupon that cost a number of classdojo points. Going by this findings, its shows that ClassDojo educational technology application actually focuses on modifying students antisocial behaviour and could not really be effective in enhance students achievement and interest in Mathematics for Economics since it won`t give room for students to see how difficulty Mathematics for Economics questions are solved.

Blockchain Technology

Blockchain technology, also known as distributed secure ledger technology, was initially deployed as a peer-to-peer electronic cash system for bitcoin cryptocurrency transactions in 2008. Blockchain technology is a time-series data block that is interconnected to form a chain structure and is based on distributed ledgers and cryptography (Nakamoto, 2016). Blockchain technology has acquired popularity as a result of its widespread cyber security capabilities, which may be applied to a variety of education, industries including global finance, commerce administration, and healthcare.

The blockchain's prospective services exceed its existing uses, and it appears that it is making a significant contribution in academia. Academia is a sector that is just as important as healthcare and finance, and there are other areas within this sector that could benefit from this innovation. The function of learning has traditionally been regulated by educational institutions, whereas researchers, instructors, and individual learners have little control over the learning process and outcomes. With the rapid advancement of cloud computing and the globalization of the learning environment, traditional school-centered classroom learning in traditional educational institutions is gradually changing, and long-term learning, online learning, flexible learning, and conveyed learning based on practical issues are becoming more common (Gartner, 2017). The blockchain could help educational institutions improve their ability to support instructors, provide information to guardians and community members, empower current learning frameworks, and expand and provide learning possibilities for more students.

Conclusion

Since all the above educational technologies are efficient when teaching Economics students, such technologies should be used to bring out the full potential in Economics students. Those technologies can also be used to teach some difficult topic in Economics and thereby enhance students` performance after a successful use of the technologies. They are other educational technologies that can be used when teaching Economics but the present study only limited those technologies to 8 which were alighted above.

Recommendations

- Government should train Economics teachers on the use of various educational technologies in teaching.

- Various materials that will aid the use of educational technologies should be provided for schools by the government.

- School administrators too should be encouraged to participate in seminars, workshops and conferences on the use and supervision of educational technologies in teaching.

References

Al-Kathiri, F. (2014). Beyond the classroom walls: Edmodo in Saudi secondary school EFLinstruction, attitudes and challenges. *English Language Teaching*, *8*(1), 189.

Awedh, A., Mueen, A., Zafar, B., & Manzoor, U. (2014). Using Socrative and Smartphones forthe support of collaborative learning. *International Journal on Integrating Technology inEducation (IJITE)*, *3*(4), 17-24.

Azuma, R. T. (1997). A survey of augmented reality. *In Presence:Teleoperators and VirtualEnvironments*, *6*, 355–385.

Burger, M. S. (2015). *The perception of the effectiveness of Classdojo in middle school   classrooms: a transcendental phenomenological study*. A Doctoral Degree Dissertation   of Liberty University, Lynchburg, VA.

Chiarelli, M., Szabo, S., & Williams, S. (2015). Using classdojo to help with classroom   management   during   guided   reading. *Texas   Journal   of   Literacy Education*, *3*(2), 81-88.

Colao, J. (2012). *Can software build character? Applying the marshmallow test to theclassroom*.Retrieved from http://www.forbes.com/sites/jjcolao/2012/08/15/cansoftware_turn-kids-into-better-people/ on 05/05/2021

Crouch, I. (2014). On the effect of virtual reality on student understanding of and interest inphysics. Masters dissertation, Unpublished Michigan Technological University.

Curran-Sejkora, E. L. (2013). Student Interactions in Edmodo versus facebook (Doctoral dissertation).Retrieved   from   http://hdl.handle.net/2286/R.I.20858 on 10th November,2020

Dara, K. (2014). *Google unveils Classroom, a tool designed to help teachers". CNET. CBSInteractive*. Retrieved on April 24, 2021 fromhttps://www.researchgate.net/publication/332344606_Attitude_of_High_School_Students_in_Using_Google_Classroom_as_a_Learning_Management_System_LMS.

Emre, E., & Kaur, A. (2017). Google classroom. *Computing and Information Technology Research   and   Education   New   Zealand   Conference Proceeding*. Retrieved on 12 march,2020 from https://www.academia.edu/35004970/Google_Classroom

Gartner, C. L. (2017). Hype cycle for emerging technologies, 2016 Adds blockchain & machinelearning for first time[OL].

Graham, C. R. (2006). *Blended learning systems*. The handbook of blended learning, 3-21.

Hankins, S. N. (2015). The effect of edmodo on students` achievement in middle school. Doctoral Thesis of St. Thomas University, Miami Gardens, Florida

Harper, D. (2001). *Online etymology dictionary – Economy*. Retrieved October 27,2019.http://www.etymonline.com/index.php?term=economy.

Holland, C., &Muilenburg, L. (2011, March). Supporting student collaboration: Edmodo inthe classroom. In M. Koehler & P. Mishra (Eds.), Proceedings of Society forInformation Technology & Teacher Education International Conference 2011 (pp.32323236). Chesapeake, VA: AACE.

Hourdequin, P. (2014). Edmodo: A Simple Tool for Blended Learning. *The Language   Teacher*, *38*(1), 34–35.

Kgalemelo, R. M. (2018). Capabilities of Google classroom as a teaching and learning tool inhigher education. *International Journal of Science Technology and Engineering*, *5*(5),30-34.

Lund, B. D., & and Agbaji, D. A. (2018). Augmented reality for browsing physical collections inacademic libraries. *Public Services Quarterly*, *14*(3), 275-282, 2018.

Lund, B. D., & Wang, T. (2019). Effect of Virtual Reality on Learning Motivation and AcademicPerformance: What Value May VR Have for Library Instruction. Kansas   Library   AssocIation College and University Libraries Section Proceedings.

Mafa, K., R and Govender, W. D (2018). **T**he use of mobile technology devices in BotswanaSecondary schools to enhance teaching and learning. *International Journal of Sciences and Research*, *74*(1), 1-15.

Maness, K. (2004). Teaching media-savvy students about the popular media. *English Journal,93(3), 46-51. http://dx.doi.org/10.2307/4128808*

Mills, K., and Chandra, V. (2011).Microblogging as a Literacy Practice for Educational   Communities.*Journal of Adolescent & Adult Literacy*, *55*(1), 35-45.

Nakamoto, S. (2016). Bitcoin: A Peer-to-Peer Electronic Cash System",https://bitcoin.org/bitcoin.pdf

Rheingold, H. (1991). Virtual reality: exploring the brave new technologies. Simon & SchusterAdult Publishing Group.

Song, H., & Kidd, T. (2010). *Hand book of research on human performance and instructionaltechnology*. Published by Information Science Reference.

Specht, M., Ternier, S., & Greller, W. (2011). Dimensions of mobile augmented reality forlearning: a first inventory. *Journal of the Research Center for Educational Technology*, *7*   (1), 117–127.

Terantino, J. M. (2011). Emerging technologies YouTube for foreign languages: You have to seethis video. *Language Learning Technology, 15(1), 10 – 16.*

Varnum, K. J. (2019). Beyond reality: Augmented, virtual, and mixed reality in the library.Chicago: American Library Association.

YouTube. (2013). About YouTube. Retrieved from YouTube website:http://www.youtube.com/yt/about/ on 2/02/2017

Wang, Q. H., Woo, H. L., Quek, C. L., Yang, Y., & Liu, M. (2012). Using the Facebook groupas a learning management system: An exploratory study. *Br Journal of EducationalTechnology*, *43*(3), 428–438.