

Social Media, University Communication and E-Learning Platforms: A Focus on Educators and Learners' Accessibility during Post-COVID-19 Era, in Nigerian Universities

Dr. Aderinsola Eunice Kayode

Faculty of Education

Faculty of Management Science

University: University of Ibadan, Nigeria and

Durban University of Technology,

KwaZulu-Nata, South Africa²

&

Dr. Maria Ekpenyong

Institute of African Studies

University of Ibadan, Nigeria

ekpenyongmaria8@gmail.com

Abstract

The outbreak of COVID-19 destabilised all sectors of the economy, including university education globally and in Nigeria. This led to the transition from the traditional physical classroom interaction to the virtual model of imparting knowledge to keep the educational system, especially the University ongoing during the lockdown in most developed countries. After the reopening of schools in Nigeria as a result of the pandemic reaching its peak, the University of Ibadan and some private universities decided to go online (synchronous and asynchronous) for both undergraduate and postgraduate teaching and learning with the assumption that there could be a second phase of the pandemic. This study, therefore, seeks to examine challenges teachers are facing while communicating with learners during the post-COVID-19 era and the impact of online learning platforms adopted by some Universities for teaching and learning. The study also investigated the impact of online learning on accessibility to learning materials, elimination of geographical barriers, and cost-effectiveness. The method is purely qualitative. The article adopted an Ethnographic design, and the population was both lecturers and students. Lecturers and students from four universities in Nigeria, the Universities of Ibadan (UI), Obafemi Awolowo University (OAU), Babcock University (BU), and Bowen University (BU) Eighty lecturers were purposively selected in the four universities in South-west Nigeria. Thirty students (discussants) were purposively selected for Focus Group Discussions. The lecturers were purposively selected from the level of readers and professors, while students were purposively selected from 300 and 400 levels. Primary data were collected through online Key Informant Interview (KII) and FGD, while secondary data were from journals articles, monographs, and relevant books. The study concludes that inadequate electricity supply and poor internet connectivity are still prevalent in Nigerian universities. The study, therefore, recommends that the government of Nigeria should upgrade ICT facilities in universities to ease challenges faced during virtual learning, provide unlimited electricity and upgrade the bandwidth of the internet to enhance teaching and learning in the education sector.

Word Count: 324

Keywords: New Media, Tertiary Institutions, COVID-19 Pandemic, Accessibility.

Introduction

In the early year 2020, all schools, including universities, were shut down for the safety of citizens during the outbreak of the devastating COVID-19 infection. The outbreak of COVID-19 destabilised all sectors of the economy, and universities in Nigeria and international communities were no exception (Kpae, 2020). In Nigeria, the Federal Government announced a national lockdown and closure of all schools, including higher institutions, without further directives. (Crawford, et al., 2020). There was no date for immediate resumption or provision for virtual learning. Other countries made provision for online or distance learning, but the Federal Government in Nigeria did not. This created a large gap in learning, especially for public universities, and led to the negative impact of COVID-19 on the educational system as most public schools were shut down for almost a year. The national lockdown and closure of schools were parts of the attempts to protect the lives of all citizens. Schools were closed from March 23, 2020, due to the deadly virus spread in all parts of the country. This infection is a respiratory disease caused by a novel coronavirus that was first reported in Wuhan City, Hubei Province, China, in December 2019. Subsequently, the World Health Organization declared the global health pandemic on March 11, 2020. (UNESCO, 2020; Samuel, Ogunjuyigbe, Ayodeji and Babalola, 2020). Final year students who were preparing for their final examinations did not welcome the lockdown and school closure. Newly admitted students who were anxious to resume universities of their choices had their hope dashed and could not get further due to this unexpected development.

Since the outbreak of the COVID-19 pandemic, several steps have been taken by the Federal government, the health and the media sectors to educate and sensitise the masses on the nature of transmission, how to stay safe with all the preventive measures for the coronavirus. In addition, the National Centre for Disease Control (NCDC) was repositioned and given the mandate to coordinate medical experts, health officials, and media officials to map out the strategies and modalities to curb and minimise the spread of the deadly diseases to the general public. (Audu & Joel, 2020). Furthermore, in respective tertiary institutions, rules for prevention were reeled out for all and sundry such as the compulsory use of face masks, hand washing, use of hand sanitizer, and social distancing in groups and while in crowds.

Before the COVID-19 pandemic, social media platforms were mostly utilised for social needs of individuals WhatsApp groups, religious groups, broadcasters, marketer's entertainment, and for socialisation purposes, as the name implies," social media."Like other sectors, the education sector moved to social media platforms, which were the only available channels for collaborations, interactions for learning, and dissemination of essential and urgent information. On October 12, 2020, the Federal Government ordered the physical reopening of schools and mandated citizens to adhere strictly to guidelines from NCDC as safety measures. (Ettang, 2020). Schools made adequate preparedness for reopening and resumption of academic activities, emphasising the health and safety of learners, teachers, administrators. (Federal Ministry of Education). Since the effect of the pandemic were still in place, some universities decided to utilise e-learning platforms for continuous learning. The reason behind the decision for online learning stemmed from the belief that although the COVID-19 pandemic might be on the decline, the coronavirus would still be prevalent in tertiary institutions. And behold, the third variant of COVID-19 was on the ground, and the country is still battling it. Based on this development, universities like the University of Ibadan, which had resumed physical activities for the first semester, had to revert to virtual learning in the second semester. The education sector is not expected to shut doors against learning; this explains the schools' determination to continue with

teaching and learning online. But the use of social media as learning platforms poses severe challenges for teachers, learners, and parents due to the problem of accessibility.

While some universities resumed physical activities, others, like the University of Ibadan and some private universities, decided to go online (synchronous and asynchronous). Blended learning with synchronous and asynchronous serve as alternative to face-to-face traditional method during this COVID-19 pandemic. Synchronous learning means learning that takes place simultaneously, while asynchronous is the kind of learning that does not occur simultaneously but the instructor, the learners, and other participants are not engaged in the learning process (Kayode, 2019; Priscila, 2020). Under this method, online content is created with pre-recorded video and materials uploaded. Those universities that opted for asynchronous and synchronous mode of learning adopted social media platforms such as recorded voice notes, e-mails, recorded class lectures, sending questions and waiting for answers, webinars training, using online application like, google classroom, online questions for self spaced and all these activities take place using internet facilities.

Post COVID-19 era revealed another era in education and development in an interconnected world with the adoption of the synchronous and asynchronous learning system. This new development ushered in the new normal in an educational system, making teaching and learning very complex (Kayode, 2019). It has also brought in innovative teaching method which involves new ways of interaction between the teacher and learner. Asynchronous learning is commendable because it is expected that education must not be neglected even in the face of challenges. If the educational system is neglected, then the socio-economy activities would be neglected due to the link between education and sustainable development.

Both COVID -19 and its third variant have now compelled Nigerian universities to turn to social media platforms for online learning and relevant information on academic issues. The issue is that how accessible are the social media platforms to teachers and learners ? This article investigates the accessibility of social media platforms for e-learning such as Management Learning System, Google Meet and recorded voice notes. These platforms were purposely selected to interrogate their accessibility to teachers and learners. Two universities were adopted for the studies, one Federal and one State university, to compare the level of accessibility and to determine how successful they have employed suitable e-learning platforms for communication between teachers and learners. Both universities of Ibadan and Ife (OAU) started with virtual learning and returned to traditional classrooms six weeks after. These two Federal universities are underfunded by the Federal government, while Babcock and VERITAS universities have adequate and quality infrastructure for online learning.

This article addresses the educators and learners access to social media platforms for online methods during post-COVID-19 era.

Research Problem

Studies in COVID-19 and social media have dwelt on e-learning in teaching and learning during this pandemic (Alonge, 2017; Kayode et. al., 2020). However, this article highlights specifically, accessibility of e-learning platforms by teachers and learners during the post COVID -19 era in universities. Attention is on university communication and e-learning platforms. The perception of social media as e-learning platforms for tertiary Institutions has been minutely examined by scholars (Govender & Kayode, 2020; and Aboderin, 2018, Maleshoane, 2021). This article has dwelt on the accessibility of e-learning platforms by educators and learners during post-COVID -

19 era in universities in Nigeria. Despite spirited efforts made for healthy resumption during the post-COVID-19 era, but challenges of accessibility of e-learning platforms confronts both educators and learners. Many researchers (Alonge, 2017, Kayode & Maleshoane, 2021) have argued that social media access to e-learning improves teaching and learning. However, again, it was discovered that social media platforms like Facebook, Twitter, and YouTube are not accessible on their own and may never be. In using social media as a tool, learners with disabilities must be considered because some of them may not be able to use them effectively. Media accessibility is essential because you miss out on connecting with your full potential audience without it. Against this backdrop, this article seeks to dwell on the accessibility of e-learning platforms by educators and learners during the post-COVID -19 era.

Research Questions

Ascertain whether the implementation of online learning in the universities had made the learning accessible, eliminated geographical barriers, and was cost-effective. Are these social media platforms in e-learning accessible to educators and learners?

1. What is the relevance of social media platforms in university communication during the post-COVID-19 era?
2. Examine the challenges educators face while communicating with learners during the post-COVID-19 era and the impact of online learning platforms adopted by individual universities for virtual learning.
3. Determine how accessible the selected social media platforms are to both educators and learners?
4. Ascertain whether the implementation of online learning in the universities had made the learning accessible, eliminated geographical barriers, and was cost-effective or not.

COVID-19 Pandemic and Disruptions in Educational Sector

On December 31, 2020, the outbreak of coronavirus, popularly known as COVID-19, was announced by the World Health Organization (WHO). According to Siddique *et. al.*, (2021), said that the World Health Organization (WHO) announced on Thursday, January 30 2020, the present occurrence of COVID-19 is the sixth global health emergency. As of December 3, 2020, sixty-four million people worldwide have been affected by this disease, and the global economy has experienced a loss of more than \$1 trillion. The first case of COVID-19 in Africa was reported and confirmed from Egypt in the North African country. The index case in Nigeria was an Italian construction worker in Ogun State who had just returned from Milan (Kaisara and Bwalya, 2021). Due to the national lockdown and schools closure, all mobility and migration across the country were impeded. The closure brought about disruptions of unprecedented degree in the educational sector. According to Samuel *et al.*, (2020), Higher education institutions such as universities, colleges, and other institutions were all negatively affected. All public universities were disproportionately affected as they could not adopt online learning like private universities due to ASSU's national strike. Studies by UNESCO (2020), found out that approximately 1.725 billion learners were affected due to school closures as only ten countries kept their schools open. Studies revealed that more than 90% of higher institutions worldwide were closed down as part of the efforts to curb the spread of the COVID-19 pandemic.

Since the outbreak of the COVID-19 pandemic, several steps were taken by the Federal Government, the health and the media sector to educate and sensitise the masses on the nature of transmission, how to stay safe with all the preventive measures for the coronavirus. In addition, the National Centre for Disease Control (NCDC) was repositioned and given the mandate to coordinate medical experts, health officials, and media officials to map out the strategies and modalities to curb and minimise the spread of the deadly diseases to the general public. (Audu and Joel, 2020). Furthermore, in respective tertiary institutions, rules for prevention were reeled out for all and sundry, such as the compulsory use of face masks, hand wash, sanitizer, and social distancing in groups and while in crowd.

Concept of E-learning

Online or distance learning is all e-learning methods driven through social media platforms on the internet, which is entirely different from traditional face-to-face education. To be involved in this type of learning, possessing electronic devices such as laptops, computers, smart phones, and tablets are compulsory. It is equally a must that one must be connected to social media platforms to be able to function. According to Mpungose (2020), e-learning is education that takes place over the internet and it is alternatively called online learning but not in the face-to-face platform. (Anderson, 2016, cited in Mpungose (2020). Similarly, Choudhury and Pattnaik (2020), assert that the definition of e-learning commenced (evolves) with the evolution of Web from Web 0 to 4.0 and that this word was introduced to internet-based learning with Web 0, which was a read-only site. With the use of e-learning platforms, course contents are readily made available online. However, they must be accessed through technological hardware such computer laptops, android phones and software resources (such as software applications, social media sites), Learning Management System (LMS), and other social media platforms (Rodrigues et al., 2019).

Concept of Higher Institution of Learning

Higher learning institutions are rated as the highest academic and the most advanced level of instructions (formal or non-formal). It is the backbone of any society and the highest level of education that is above secondary school. The higher institution comprises; private and public universities, polytechnics, mono-techniques, agricultural colleges, colleges of education, and other colleges. They were all set in a formal setting, but now, some colleges have gone online. It is also an educational institution in any state that admits regular students who meet the admission requirements of such institution's qualification with WAEC certificates. And it is legally authorised within such state to provide a program for which the institution awards a bachelor's degree. (Rao et al., 2012). According to (LISBDNETWORK 2020), higher education aims to provide citizens an opportunity to reflect on social, economic, cultural, moral and spiritual issues facing humanity. It provides opportunity for lifelong learning and contributes to national development through the dissemination of specialised knowledge and skill. Unfortunately, most higher education institutions both regional and globally are faced with challenges of inadequate infrastructures and basic facilities such as electricity and others. Sharma and Sharma (2015) confirmed some of the above-mentioned challenges.

University Communication and E-Learning Platforms (Advantage of Social Media for University Communication)

University communication during the COVID-19 era has been made possible by social media platforms which have really helped all parties stay in touch. For instance, teachers and learners have connected and created online relationships and support each other through social media. This was also possible because both teachers and students are active on Facebook, Instagram, YouTube, WhatsApp, Twitter, etc. With this development, all the university stakeholders can keep in touch and follow others to keep up-to-date with what others are doing. In teaching and learning, both teachers and learners have been able to surf the internet for concrete Information Online because the bulk of relevant information is provided through a series of websites where both teachers and students can find solutions to some problems. For example, better communication occurs in the University of Ibadan because administrators and academic staff connect and share crucial information on issues via WhatsApp. All staff utilizes social platforms via smart phone, tablet, or computer in significant university decisions. The Management is exchanging ideas and information on university governance through social media platforms, phone calls or video calls, voice notes, etc. Currently, the university staff utilises virtual communication rather than physical meetings because it is faster, paperless, and less time-consuming as documents are shared online through Google box or Google documents.

E-learning Platforms and University Learners

One can learn from anywhere, even in a moving vehicle, and access information, and enjoy choice with these new media platforms in digital operations. Teachers and learners prefer staying at home and exploring the new media platforms either developing/creating contents or retrieving information from the web. Instructors and learners now surf the internet for educational reasons, leading to a constant craving for new and relevant information. The more new media consumption, the more information and knowledge people gain, the more difficult to stop exploring the internet. Some instructors use new media to direct instruction, active learning teaching strategies, and students projects. Teachers use new media in lectures to stimulate interest in and develop knowledge of materials being taught to improve learning. Willbold (2016) confirms that new media could improve learning. According to him, "students are using various online tools to cater for different requirements. "This is why collaboration via WhatsApp brings about better communication and enables educator connection with learners at any time. This is made possible by using social media platforms via smart phone, tablet, or computer. Learners exchange questions through phone calls or video calls and have seized the opportunity of virtual communication to continue learning during the COVID-19 era.

Social Media: On How University Educators Communicate with Students during Post-COVID-19 Era

Stakeholders in higher institutions were all affected during the lockdown due to the outbreak of coronavirus. After resumption, academicians were confronted with significant challenges in the area of online learning within the Nigerian context. The challenges covered both technology-related and social factors. Technology has its drawback in the sense that there are many interconnectivity problems, too much focus on automation, mobile security, and some mobile devices lead to physical and psychological issues such as eye strain because so many people stare at a screen for an extended period; psychological, because some people also have difficulty focusing on essential tasks.

On the other hand, challenges associated with social media have to do with the fact that the more time users spend on it, can lead to depression, anxiety, relying on false information, exposure to content, and cyber bullying. Online hate speech, crime and harassment. It is very addictive and psychologically disturbing for the fear of missing something out and so on. Social media can be harmful because it can lead to high sexual behaviour through exposure to pornography, online dating, and the adverse health risk of internet addiction.

According to Anderson (2016), virtual learning came as a response to the COVID-19 pandemic crisis, and there was urgent online teaching and learning imply a certain Pedagogical Content Knowledge (PCK) stakeholders mainly related to designing and organising for the better learning experience and creating a unique learning environment, with the help of digital technology. The management has to do with designing learning activities. With specific characteristics and the need to adapt to new learning requirements, neither the teachers nor the students were in the classroom. However, what was suspended was the traditional education in Federal institutions in Nigeria because private institutions carried on with virtual learning. This development instigated several schools to opt for virtual/online and e-learning though not all. So many private schools made it mandatory for online classes to continue (Johnson, 2020).

Prospects of E-learning Platforms

With the third variant of COVID-19 infection known as Delta variant, one wonders about the prospect of e-learning platforms. Whether it would pose opportunities or threats to future learning, if the positive look is taken, it could be a dream come true since they offer better assistance to both teachers and learners and better time management. Some students found that e-learning platforms create a robust learning experience that feels like a real classroom experience. In a way, just like a traditional classroom with characteristics like instructor-student interaction, questions and answers session, discussion, collaborative projects, etc. On the other hand, challenges of e-learning platforms could be very discouraging due to problems such as lack of learner engagement and motivation, unrealistic deadlines, inexperience partners, staying up to date with modern technology, designing e-learning course for different generations, and so on. Students now have the freedom to study anywhere, although not without an expensive price (Shanahan, 2020). Based on lessons from COVID-19 and the shutting down of schools, the Federal Government of Nigeria needs to take a clue from this ugly development of COVID-19 to upgrade facilities for primary schools, colleges, and higher Institutions of learning in order to forestall the incidence of total closure of all level of schools. The steps that need to be taken beforehand to accommodate online learning include, provision of limited electricity and upgrading interconnectivity. This will enhance learning in the country in case of any other strange and devastating outbreak in the country as this will improve infrastructure like well-ventilated classrooms, internet facilities in libraries, well equipped and connected laboratories, study halls, electricity, water, etc. even exams were taken at home where they were able to write anywhere and anytime.

Research Findings

The results of this article are summarised as follows:

In an online interview, discussions with distinguished lecturers and some students in all the selected universities ascertained whether online learning in the universities had made the learning

accessible, eliminated geographical barriers, and was cost-effective or not. The responses from the participants tallied with each other.

From Educator's Perspectives

"Accessing social media platforms for virtual teaching was both a sweet and bitter experience. I utilised WhatsApp, ZOOM and Google Classroom in lecture delivery. However, it was expensive, and no fund was allocated for that purpose. I found it hectic and time consuming when using social media platforms for both browsing and teaching. Moreover, it affected my eyes because i had to stare more at the screen ever than before."

"I have found it helpful in terms of communication, the high cost of data is finishing university lecturers who have no other source of income apart from salary"

"Although social media platforms offers ability for us to interact, collaborate and associate with students and other members of the university community, but there is no enough ICT facility and stable electricity"

"From my experience, there was a lot of digital divides arising from students from different backgrounds."

From Students' Perspectives

In a Focus Group Discussion (FGD) with the students presented thus:

"It is affecting our sleeps because some of us who are not buoyant enough with finances have to be browsing in the night to beat down the high cost of data."

Another student, "though the social media platforms are very good for us to share and receive information with our lecturers, in our various causes and other issues concerning our academic work, we found it expensive."

"On various occasions, we would not hear what our lecturers are saying due to poor internet connectivity. So we had to go and plead with some of them to organise face-to-face classes for us."

"Home environment was not conducive for learning due to distractions, poor network, and absent or fluctuating electricity." This tallies with findings from Pauli and Dawids, (2020), that home environments were not conducive for learning.

"We experience limited access to social media platforms due to expensive nature of electronic devices,"

"We adapted to the new online learning because we wanted to continue with our studies after staying at home for almost one year but accessing the social media platforms was a serious issue."

"Although we have the freedom to access course contents and other information anytime; however, challenges of unstable electricity seem unbearable."

Conclusion

This article aimed to examine challenges educators and students face while communicating regarding access to new media platforms during the post-COVID-19 era. This was done by soliciting educators' and learners' opinions on the accessibility of new media platforms in Nigeria's selected universities during the COVID-19 pandemic. The article interviewed both males and females educators and students. Moreover, the impact of online learning platforms adopted by individual universities for virtual learning, KII and FGI was designed to determine how the teachers

have access to the internet and social media platforms. The article found that financial support, technical issues, poor working conditions, lack of laboratory facilities, poor technological skills, increased workloads, clashes between classes, low quality of internet services, inability of universities to provide internet facilities to the whole learning community affected the e-learning during this new normal.

Management will need functioning virtual library, dedicated and electronic classrooms with modern facilities required for e-learning conducting virtual training and constant upgrading of educators skills, constant supply of IT infrastructure and periodic maintenance of computer devices and supporting equipment. The study also seeks to ascertain whether the implementation of online learning in the universities had made the learning accessible, eliminated geographical barriers, and was cost-effective.

Recommendations

The Federal Government should provide accessible internet facilities to all Nigerian universities to reduce the financial hardship currently experienced by the teaching staff in learning communities. University management should provide a functioning virtual library for access to required materials and provide a dedicated and electronic classroom with modern facilities such as electronic boards. The university system should be staff capacity building on using most e-learning virtual platforms to upgrade educators' skills constantly. The management should prioritise the constant supply of technological tools, infrastructure and periodic maintenance of computer devices and supporting equipment. The article also recommends the regular provision of unlimited electricity and upgraded interconnectivity to enhance learning. The university management should include various means of subsidising data subscriptions for teachers. Finally, the government needs to increase funding resources and investment in education at the tertiary level.

Acknowledgment

We appreciate the support of the lecturers and students who voluntarily participated in the research survey of this current study.

References

- Azzi-Huck, K. and T. Shmis (2020). Managing the impact of COVID-19 on education systems around the world: How countries are preparing, coping, and planning for recovery.
- Bol, T., (2020). Inequality in homeschooling during the corona crisis in the Netherlands, first result from the LISS panel.
- Burgess, S. (2020). How should we help the COVID-19 cohorts make up the learning loss from lockdown?
- Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), p.1-20.
- Di Vaio, A., Boccia, F., Landriani, L., Palladino, R., (2020a). Artificial intelligence in the agric-food system: Rethinking sustainable business models in the COVID-19 scenario. *Sustainability* 12(12), 4851.
- Dlamini, R. Nkambule F. (2019). Information and communication technologies' pedagogical affordances in education. *J. Encyclopedia Education Inform Technology* 1(2019): 1-14.

- Ettang, I. (2020). Nigeria Government calls for reopening of schools after 6-months of COVID lockdown. October. <https://www.voanews.com>
- Federal Ministry of Education, (2020). Guidelines for schools and learning facilities reopening after COVID-19 pandemic closures.
- Govender, DW & Kayode, AE (2020). Examining Availability and Frequency use of Computer-Based Technology Resources among Students in Nigerian Universities. *PONTE, Academic Journal*. Apr.2020, Vol.76, Issue 4. <http://dx.doi.org/10.21506/j.ponte.2020.4.26>
- Huang, R. H., Liu, D. J., Tlili, A., Yang, J. F., Wang, H. H., Zhang, M., Lu, H., Gao, B., Cai, Z., (2020). Learning during the lockdown: real-time data on children's experiences during home learning.
- Johnson, J. (2020) Negative Effects of Technology: What to Know. *Medical News Today*. w.medicalnewstoday.com
- Kaisara, G. and Bwalya, K. J. (2021). Investigating the e-learning challenges faces by students during COVID-19 in Namibia. *International journal of Higher Education*. Vol. 10. No.3
- Kayode, A. and Rapeane-Mathonsi, M. (2021). Utilisation of social media during Covid-19 Pandemic among students in Nigeria. conference proceeding of the 8th European Conference on social media – Cyprus, 1 – 2 July, 2021. (p.111).
- Kayode, A.E, Irele, A. O., Agunbiade J. F., & George-Kayode, B.O. (2019) ICT for Effectiveness and Job Performance of Staff in the Universities in Nigeria. *Texila International Journal of Academic Research*. DOI:10.21522/TIJAR.2014.SE.19.02.Art004. ISSN: 2520 – 3088. Retrieved February, 20, 2020.
- Kayode, AE, Bolaji A.O., Oladele O.E., & Agunbiade F.J. (2021). Social Media as a form of Digital Tool(s) and Academic Performance of University Students in Nigeria. *Texila America University* <https://www.texilajournal.com>. DOI:10.21522/tijar.2014.SE.21.01.Art002
- Kpae, G. (2020). Impact of Covid-19 on society, economics and education of Nigeria. *International Journal of English Literature and Social Sciences*, 5(5), p.1773-1778.
- Kuhfeld, M. and B, Tarasawa (2020). The COVID-19 slide: What summer learning loss can tell us about the potential impact of school closures on student academic achievement, NWEA.
- Matthiesen-Jones, M. (2021). Cultural impact of digital communication. p.2. <https://study.com/acad>.
- Michael, A.P., E.T. AL (2021). Social media platforms and its impact on academic performance of senior high school students in the new normal learning system. *International Journal of Multidisciplinary Studies*. Vol. 5, No.1: 30 -34.
- Obi-Ani, N. K., Anikwenze, C., Isiani, M.D. (2020). Social media and the COVID-19 pandemic: observations from Nigeria. *Cgent Arts & Humanities*. Vol. 7. Issue 1.
- Rao M.S. et al., (2011). Quality management in higher education.
- Ryan, S. D., Magro, M. J., Sharp, J. H. (2011). Exploring Educational and Cultural Adaptation through Social Network Sites. *Journal of Information Technology Education*, Vol. 10, 2011.
- Sahu, P.(2020).: Closure of universities due to Coronavirus Disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. *Cureus*
- Sevilla, A. and S. Smith (2020). "Baby steps: The Gender Division of childcare after COVID-19", *COVID Economic: Vetted and Real-Time paper*, Vol. 23.
- Shahzad, A., Hassan, R., Abdullahi, N. I., Hussain, A., Fareed, M.(2020). COVID-19 impact on e-commerce usage: An empirical evidence from Malaysian healthcare industry. *Humanities and Sciences Reviews*. P.8(3),599-609

- Sharma, S. and Sharma, P. (2015). Indian education system: Challenges and suggestions. *Electronic Journal for Inclusive Education*. Vol. 3. No. 4.
- Siddique, F., Abbas, R. Z., Mansoor, M. K., Alghamdi, E. S., Saeed, M., Ayaz, M. M., & Hussain, I. (2021). An Insight Into COVID-19: A 21st Century Disaster and Its Relation to Immunocompetence and Food Antioxidants. *Frontiers in veterinary science*, 7, 1168.
- The Economist (2020). Closing schools for COVID-19 does lifelong harm and widens inequality.
- Wang, Q., Woo, H. L., Quek, C. L., Yang, Y, and Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, 43: p.428-438. doi: 10.1111/j.1467-8353.2011.01195.