



# Indonesian Journal of Educational Research and Technology



Journal homepage: <http://ejournal.upi.edu/index.php/IJERT/>

## Policy for Distance Learning in Education in Higher Education Institutions: Experiences from Sudan

Saifaldin Idris Onia<sup>1,\*</sup>, Amel Farage Rmadan<sup>2</sup>

<sup>1</sup>Department of Foundations of Education and Educational Administration, Faculty of Education, University of Khartoum, Sudan

<sup>2</sup>Department of Educational Sciences, Faculty of Education, Gezira University, Sudan

\*Correspondence: E-mail: [saifonia89@gmail.com](mailto:saifonia89@gmail.com)

### ABSTRACT

The introduction of distance learning in education in universities has transferred the competition between them to a higher, global level also. However, Sudan is one of the African countries, suffering from many challenges that are related to technology such as poor network, lack of awareness, lack of commitment of institutions and instructors, and lack of network coverage to the remote areas. Therefore, this paper aimed to review the initiative of distance education in some Sudanese universities. In doing so, this paper followed a qualitative research approach to the type of case study research. The information for this study was derived from articles, books, online sources, reports, and documents. The paper reviewed distance education policy in some Sudanese Universities Such as the Open University of Sudan, University of Khartoum, Sudan University of Science and Technology, Al-Neelain University, and Al-Zaeem Al-Azhari University. It was normal that universities in Sudan needed to introduce their teachers and students to such distance education programs to achieve more excellence in teaching and learning. The paper suggests college officials should adopt policies to implement distance education in Sudanese universities.

### ARTICLE INFO

#### Article History:

Submitted/Received 13 Apr 2022

First revised 08 May 2022

Accepted 22 May 2022

First available online 23 May 2022

Publication date 01 Mar 2023

#### Keyword:

Distance education,  
Higher education,  
Sudanese universities,  
Traditional education.

## 1. INTRODUCTION

In the twenty-first century, with the explosion of information, it has been seen that the need for education in all communities has increased. The need for education has provided the development of new educational technologies and new methods of education and training, and these ultimately developed new technologies and different methods combined and gradually changed education. Traditional educational institutions are not able to meet the increasing demand for education. The emerging education gap is increasing every day. Because of this demand, communities have looked for alternatives to traditional education, and the concept of "distance education" has evolved. The increasing number of students, the education demand of various masses of students, past students, and people's attempts to meet educational needs as a result of business and employment have led to life-long learning are the most important causes for this transformation in education (Dursun *et al.*, 2014).

Distance Education is a method of education in which learners are physically separate from educators (Kaya, 2012). Distance education refers to the delivery of educational services where the teacher is in one place and students are in other locations. The offering can be via satellite hookups, cable, CD, the internet, or through the intranet of the institution, to gain both performance and speed distance learning can be through radio, TV, and tape-recording. Distance education also referred to as distance learning, e-learning, and online learning represents an educational approach that occurs when the professors and students are separated by space and time. Distance education is based upon the sophisticated technology of today, which allows the participants to 'see' and 'hear' each other as if they were in the same room. The 'room' is the screen. These 'rooms' are now possible thanks to today's sophisticated technology, which has been well-known during the current COVID-19 crisis, which has compelled the adoption of distance learning in the field of higher education (Todri *et al.*, 2020). The distinct differences between 'distance education' and 'e-learning' in higher education settings. Many higher education policymakers, scholars, and practitioners use these two terms interchangeably as synonyms. However, the fact is that distance education in most higher education systems is not delivered through the new electronic media, and vice versa - e-learning in most universities and distance education is not offered in any of the world's colleges. In some circumstances, the terms "distance education" and "e-learning" are interchangeable, but they are not synonymous. Thus, distance education has many various forms are described below: education by correspondence, education by correspondence, external study, independent study, open learning, self-learning, informal education, continuing education, and programmed instruction. Therefore, distance education is the kind of education that is based on media technology that can ensure direct contact between teacher and learner within an institutional organization and provides opportunities for direct encounters between them.

Since the pandemic of coronavirus disease 2019 (COVID-19) in early 2020, the demand for online and distance education has grown drastically around the world. Distance education shifts the educational experience from teacher-centered to learner-centered. Instructors become more facilitators, intermediaries between the students, and the resources they need for their independent study (Bower, 2001). It provides easy access to education to different sections of society, especially to those with seemingly geographical isolation & difficulty, and caters to the educational needs of the target groups through the open systems of learning (Singh & Paliwal, 2012). Distance education can reach out to the underserved, as well as disadvantaged and excluded groups like tribal peoples and women (Singh & Paliwal, 2012). The ongoing and increasing global COVID-19 constraints, in particular, have emphasized the

relevance of online teaching and learning in higher education in general and international education.

The introduction of distance education in universities has transferred the competition between them to a higher, global level also (Drokina, 2020). For many years, universities with a significant commitment to distance and open education institutions have been at the forefront of adopting new technologies to increase access to education and training opportunities. Distance education operations have evolved through the following four generations: first, the Correspondence Model based on print technology; second, the Multi-media Model based on print, audio, and video technologies; third, the Tele-learning Model, based on applications of telecommunications technologies to provide opportunities for synchronous communication; and fourth, the Flexible Learning Model based on online delivery via the Internet. Although many universities are only now beginning to execute fourth-generation distant education programs, the fifth generation is already forming as a result of the increased use of new technologies. The fifth generation of distance education is essentially a descendant of the fourth, which tries to take advantage of the Internet's and Web's advantages (Taylor, 2001). Thus, distance education has become an important element of the educational system in universities (Drokina, 2020). The literature reviewing distance education trends, the evolving methods of delivery, and emerging distance technologies are extensive. One of the reasons that distance education has become and remained so prevalent, in particular for higher education, is that various studies have validated its practice – revealing no significant differences in learning outcomes between traditional and distance students. Ulmer *et al.* (2007) examined differences among higher education faculty members regarding distance education. It is noteworthy that only the perceptions were measured rather than actual learning outcomes and quality of distance education. The results suggested those faculty members with experience responded favourably to questions about distance education, while those without experience were less receptive.

Uhlig (2002) examined the history and future of distance education, pointing out that distance education is not new, but the arrival of an affordable personal computer, the rapid development of online courses has been aided by the expansion of the Internet, and the willingness of national and regional accreditation authorities to examine other than traditional educational milieus. Uhlig (2002) reported that universities and colleges have long offered text-based or print-based correspondence programs covering virtually everything from high school courses to advanced degree programs, licensure and certification programs and examinations, and traditional college-level courses. The provision of instant or almost immediate feedback, according to Uhlig, is a major difference between older distance education programs and today's Web-based programs.

Drokina (2020) analyzed the results of introducing distance education into the educational process of universities, which is of particular importance and relevance in the modern world. According to the respondents, the most important advantages of distance learning were the saving of time and financial resources, training students in comfortable and familiar conditions, and improving their self-control skills. The main disadvantages of distance learning were considered by respondents to be technical problems associated with an uninterrupted Internet connection, fatigue from long-term work with a computer, as well as insufficient qualifications of teachers, which do not allow using all the possibilities of distance learning.

Elnikova *et al.* (2020) analyzed the organization of distance learning for students during a pandemic. It was found that Belgorod educational organizations of higher education (universities), relying on the previously created base of distance learning, were able to

promptly organize the implementation of curricula remotely and complete the academic year. Belgorod universities, on the other hand, do not see distant education as a viable alternative to traditional education. The study also revealed that modern e-education in its current form does not fully satisfy the criteria of the technological revolutions of the twenty-first century, as it focuses solely on information transfer and does not help the development of a creative personality with high mobility.

Durak *et al.* (2020) investigated the universities' distance education activities during the Covid19 pandemic in Turkey. Despite the Council of Higher Education's guidelines, only six universities had all of their courses delivered synchronously using virtual classroom software. Most universities stuck with their existing learning management systems and virtual classroom software to manage the new situation. The most challenging work they undertook during this process, according to participants, was educating lecturers about distance education systems.

Tosun (2021) stated that after the World Health Organization declared Covid-19 a pandemic, universities in Turkey, like many other countries, began compulsory distance education in March. Most of the courses are conducted by distance education. Millions of students and academics have been involved in distance education through technologies enabled by the existing infrastructure of their universities. The difference in distance education infrastructure and readiness among universities has been seen more clearly in applications.

Viju (2021) showed that universities around the world are increasingly moving toward online education or e-learning. Faculty members should use technology and technical apparel to boost learning during these unplanned moments, according to this article. This suggests that online and distance learning is a requirement during lock-down and social distance due to the Covid-19 pandemic.

On the other hand, Sudan is one of the African countries, suffering from many challenges which are related to technology such as poor network, lack of awareness, lack of commitment of institutions and instructors, and lack of network coverage to the remote areas. It is also regrettable that the internet service has not yet been used fully for pedagogical purposes. The first initiative of distance learning in Sudan was (Open Sudan university). In the first phase of its development, it was depending on printed materials, TV, cassette, radio, lessons in CD ROM, and the modern one is a video conference, it takes place (between the main center and students in one province for one time). All facets of society and organizations were affected by the emergence of internet technology and multiple applications in Sudan. It was normal that universities in Sudan needed to introduce their teachers and students to such technologies to achieve more excellence in teaching and learning. Over the past, however, efforts have also been made to use e-learning tools to administer courses in Sudanese universities' education programs (Ibrahim *et al.*, 2021). Hence, distance education is offered by some Sudanese Universities Such as the Open University of Sudan which was founded in 2002. It aims to adopt contemporary teaching techniques as well as provide an excellent education for those who care about it anytime anywhere in education. Another university that offers distance learning is Sudan University of science and technology, it offers postgraduates, particularly in the Major of Computer-integrated education.

Elsheikh (2018) aimed at investigating the effects of the electronic learning curricula in the Sudanese universities according to the point of view of the university lecturers. Results of the study showed that E-learning is used in the Sudanese universities and some universities apply part of its tools such as Electronic libraries and E-mail. Sudanese university faculty support the use of E-learning in Sudanese universities, especially the use of computers in the teaching

process, but a very small percentage of them believe that the traditional methods of teaching give better results. E-learning is facing a lot of problems and obstacles that would make its application in universities in Sudan extremely difficult. These obstacles include poor infrastructure and a lack of high-quality networks.

The effect of the application of electronic education at Sudanese universities according to some of the current trends of comprehensive quality. The study suggests the electronic tools should be increased to apply the electronic education in a way that satisfies comprehensive quality and to train the human resources to deal with good electronic education.

Abas *et al.* (2021) aimed to find out the contemporary challenges facing education in Sudanese universities in light of the outbreak of the Corona pandemic. The study revealed that distance education is the best alternative for continuing studies in Sudanese universities in light of the Corona epidemic. Moreover, pairing (tradition and modernity) in the distance learning process is the most appropriate way to confront contemporary education issues in Sudan, as the study showed that strengthening the Internet networks in Sudanese universities and the stability of the electrical current is considered to be one of the most important factors helping to make the distance education process a success. The study recommended the necessity to open the field wide for training teachers and students in using distance education platforms. Improving internet and electricity services, and strengthening the infrastructure in Sudanese universities.

Ibrahim *et al.* (2021) aimed to explore the barriers to online learning in Sudan. According to the research, Sudan faces five distinct challenges to e-learning adoption, including poor network infrastructure, a lack of bandwidth in rural regions, power outages, a lack of electricity in rural areas, and stakeholder e-skills shortage. Furthermore, the survey revealed that some academics are elderly and reject e-learning use. Likewise, the study found that 67% of respondents were not able to access the internet in their areas during the Covid19 lockdown, 25% of respondents do not possess computers, 35% of respondents did not receive training for gaining E-skills, and 74% of respondents prefer learning in classrooms. The study found that for e-learning to be adopted in Sudan, several steps must be taken, including intensive e-skills training for stakeholders, stakeholder support, electricity and internet network connections to all parts of Sudan, poverty reduction, and student motivation to accept e-learning.

In light of the above perspectives, this paper strives to review the distance education policy in some Sudanese universities.

## 2. METHOD

This study followed a qualitative research approach to the type of case study research. A case study research is a qualitative research approach in which researchers focus on a unit of study known as a bounded system. A case study was used because researchers want to describe the context of the study and the extent to which a particular program (distance education) has been implemented. In addition, a case study is an appropriate method because it attempts to examine one area of concern (distance education) through one case (some Sudanese Universities) or bounded system.

For data collection, the information for this study was derived from articles, books, online sources, and reports or documents. Therefore, the data analysis technique is done through content analysis whose scope consists of the depth of information content. This is done so that the study of the topics discussed in this article can be presented comprehensively and systematically.

### **3. RESULTS AND DISCUSSION**

#### **3.1 Distance Education at the University of Khartoum**

The University of Khartoum's experience with distance education began in May of the year 1999, through the establishment of the distance education unit at the Faculty of Technical and Development Studies intending to stimulate the various colleges of the university to enter the e-learning system, and the university has sought to obtain educational outputs with the specifications required for this type of education through the establishment of seminars, workshops and training courses for supervisors to improve the performance of this new technology, the training programs included training for teachers to design and write educational materials for distance education, and the production of visual educational materials in addition to the design and production of educational materials via computer and related technologies. In the year 2001, the university approved a set of study programs to be accepted according to the conditions of distance education using the e-learning technology, and the programs offered include accounting, management, finance, business administration, forestry, college education programs, and computer studies programs.

The university has benefited from the existing electronic technologies represented in the local networks and internet services that have been introduced in the university since 1998. The university also benefited from the implementation of the distance education program from the Video Conferencing Technology, which in turn led to the emergence of the concept of the virtual classroom. This technology has contributed to filling the shortage of faculty members in regional and state universities, and the university has also benefited from online services and online discussion services. (Online Discussion), in addition to the electronic library services. There might be some issues in implementing online learning by a major state university in Sudan like the University of Khartoum. This is due in part to the large number of students admitted. Other issues relate to the availability of the right hardware and software, networks do not allow some universities to move toward online learning (University of Khartoum).

The situation remained the same until the director of the University of Khartoum, Professor Mustafa Idris Al - Bashir executive order No. (6) for the year 2010 on to form a committee for the development of distance education programs for the university. The Commission has used foreign and local experts and has proposed the committee is in the process of developing distance education at the university:

- Dissemination of the culture of distance education among professors in different colleges so that they realize the value of education Distance and its methods and controls.
- Training teachers in intensive courses on distance learning methodology.
- Preparation of educational material written in the distance learning system for all programs before registration of the students has.
- Adoption of the printed educational material as a basis for the study of the course in addition to supporting media: CDs, videotapes, cassette tapes, radio broadcasts, television broadcasts, Internet, and period Linguistic.
- Establish the infrastructure needed for distance learning from Reference Library for Teachers, Network Electronic communication, Website, Computer lab, Equipment for the production of materials Education.

#### **3.2 Distance Education at Sudan University of Science and Technology**

Distance education began at the university in 1995, where the enrollment section was affiliated with the college technology and human development offers undergraduate programs for students of Qatar and Arab countries. In 2001, the department of distance

learning was founded in the same college, where it consisted of three divisions: division admission and registration, curriculum and teaching division, and examinations division. After increasing numbers of students and a variety of programs the department was raised in the year 2003 to the distance-learning center and is responsible for the submission of distance learning programs for students both inside and outside the country. This is also the case until the year 2012 when the first workshop was held for distance study, which recommended changing the name to the deanship distance education and e-learning. The vision of the deanship was to create an education that offered opportunities for freedom from the constraints of time and space and allows the student to enjoy more educational opportunities using modern media to achieve the democracy of education.

Students are admitted to various programs according to the list of admission students issued by the National Council for Higher Education and Scientific Research in May 2003. The deanship cooperates with distance education with a range of centres within and outside Sudan within the framework of the investigation vision, mission, and objectives of the deanship. The distance learning system at the university is non-formal and does not require the presence of lecturers and halls for students. Reviews at the end of the year and before exams are conducted sufficiently in all materials, 25% of the material is covered. The student will be given all courses in the form of systematic books or CDs which can be obtained from websites Electronic and also in the form of lectures on CDs. Reviews can also be organized Concentration on all materials by qualified teachers as desired by the student.

### **3.3 Distance Education at Al-Neelain University**

The department of distance learning at the university is responsible for distance education this administration was established in 1996 under the name of the affiliation section until its name was changed to the department of distance learning in December of 2001. The department aims to achieve financial income that contributes to the university's budget and to support and provides opportunities for study for those who have not had the opportunity to study at university. This department consists of two sections: the affiliation section and the center's section for foreign affairs in terms of inclusion, its systems are multiplied by: inclusion through competition: during a certain period in which all interested students apply for general admission through the admissions office, and are selected and accepted according to the trade-off between certificates and estimates. Direct admission: this is after the opportunity for the competition ends, as the student submits to the office of the department of education after the university, or fills out the application form at the admissions office. Students who apply for admission to the university through the departments of professions and jobs that they work. Promotion: in the system, the student is admitted in a year higher than the first year, provided that he obtains a previous diploma from any university.

In terms of preparing educational material and subjecting it to suit distance education, this does not happen because both internal and external students are given books and notes that do not fit distance learning. The distance learning list allows for internal enrolment students to attend lectures together with regular students, this invites us to stop at this, students understand distance learning in terms of the name only, but they are regular students. In terms of educational support, there are what is so-called student service centers of the department of distance education at the University of Neelain, which provides students with educational materials, and answers the centers are located in Jordan, al-Aqsa center, and in the kingdom of Saudi Arabia "Riyadh center" and Bahrain center. Within Sudan, there is only one main center of the university Khartoum, which provides students with services both

inside and outside Sudan. In terms of the quality of these services, we cannot call them the attribution description Educational system in the sense of the distance learning system.

As for the calendar, students are subject to the same examinations offered by the university for its regular students, the foundation exams are held once a year, usually, in July of each year, and the apprenticeship examinations are for students who have failed to sell materials in the foundation exam, or have failed them for their circumstances are required to sit for the tests, and the various work of the year that the students are subject to this means, of course, that there are no appointments that characterize the education system the books of the students are also free of self-assessment questions, as a result of not being subject to design education for distance learning. The university did not undertake any training or seminars or studies to evaluate distance learning.

### **3.4 Distance Education at Al-Zaeem Al-Azhari University**

The distance learning center was established at Al-Azim University in 2000 to make available the opportunity of university education for those who are unable to devote their time to study inside and outside Sudan, and the achievement of a material return contributes to the treatment of the University's problems and has developed the center to become a college of Technology and development studies. In the year 2001, the university signed an agreement with a German company to design and produce video and audio software, computerize the e-learning curriculum and provide an open education service through electronic technologies. In terms of preparation of the books, teachers are instructed to prepare notes in line with the same vocabulary that has been authorized to study for regular students, a diary is not a good preparation of where the scientific material, the Delhi designed so that the style suits the distance education, and above it does not free from poor printing, frequent errors, and infringement of intellectual property rights these memoranda were prepared by teaching assistants who lack sufficient knowledge in the preparation of books methodology. These memos on their shortcomings should be distributed to the learners as they begin but it often happens that their disbursement is delayed, as is the case this year.

In terms of academic support services for students, there are centers. The university partially supervises the students in terms of responding to their inquiries and presenting papers on behalf of applicants for admission, meaning that they are agents of the university in the submission of the sale services that cannot be considered academically based in the sense of education distance. among these centers is the al-Qureshi center, which is an agent to serve students affiliated with the university, the university also has two centers, one in Gedarif and the other in port Sudan. And from services provided by these centers prepare places for students to sit for exams. No matter for those centers in what we call academic support. With these centers, only the problem of communication between student and university, stands out as the biggest problem, as a result of the failure of the agent to inform information for the parties, and the student's incomplete study.

### **3.5 Distance Education at Sudan Open University**

The Sudan Open University was established by Cabinet Resolution No. 164 in April 2002, as a government university that adopts the open education system. The university relied on the use of modern technologies to provide educational materials electronically, as these materials included printed curricula that were designed according to the specifications of open education, in addition to visual and audio educational materials, and these materials were developed and designed under the supervision of specialized committees, where the Sudanese University is considered the first Which was adopted as an institution to provide



open education, as it focused on the integration of scientific and technical knowledge in the field of e-learning and open education, and the university has moved in that to use other means to broadcast its educational programs electronically, for example, for example, audio radio broadcasts, the Internet and e-mail via the international communications network, Study centers equipped with computer laboratories and various electronic teaching aids, and classroom meetings between experts and students in those centers. Sudan Open University has opted for live and recorded sessions. Sudan Open University is the first and only institution in Sudan, which operates a distance learning system in an integrated manner, and uses the university means for education as follows:

1. Audio and audio broadcasting in one direction (radio and television broadcasting).
2. International Telecommunications Network.
3. Study Centers: Twenty-one educational districts in nineteen states in Sudan.

Resident Study: University students benefit from the facilities provided by the existing universities using buildings, equipment, laboratories, libraries, and others. The university has adopted a flexible multimedia education system to offer its educational material and that is what distinguishes it from other universities.

#### **4. CONCLUSION**

The introduction of distance education in universities has transferred the competition between them to a higher, global level also. The demand for online and distance education has expanded dramatically around the world since the coronavirus disease 2019 (COVID-19) pandemic in early 2020. One of the reasons that distance education has become and remained so prevalent, in particular for higher education, is that various studies have validated its practice – revealing no significant differences in learning outcomes between traditional and distance students. The paper reviewed distance education policy in some Sudanese Universities Such as the Open University of Sudan, University of Khartoum, Sudan University of Science and Technology, AlNeelain University, and Al-Zaeem Al-Azhari University. It was normal that universities in Sudan needed to introduce their teachers and students to such distance education programs to achieve more excellence in teaching and learning. The researchers concluded with some recommendations including college officials should adopt policies to implement distance education in Sudanese universities. Likewise, designing educational materials carefully and under the direct supervision of specialists in the field. Training frameworks to deal with modern technologies. In addition, benefit from the various communication technologies available and currently available.

#### **5. AUTHORS' NOTE**

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

#### **6. REFERENCES**

- Abas, I. M. Y., Alejail, I. I. E. M., and Ali, S. M. (2021). Anxiety among the Sudanese university students during the initial stage of COVID-19 pandemic. *Heliyon*, 7(3), e06300.
- Bower, B. L. (2001). Distance education: Facing the faculty challenge. *Online Journal of Distance Learning Administration*, 4(2), 1-6.

- Drokina, K. V. (2020). Distance education in universities: advantages and disadvantages. *Международный Журнал Гуманитарных и Естественных Наук*, 9(2), 46-48.
- Durak, G., Çankaya, S., and İzmirli, S. (2020). Examining the Turkish universities' distance education systems during the COVID-19 pandemic. *Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education*, 14(1), 787-809.
- Dursun, T., Oskaybaş, K., and Gökmen, C. (2014). Comparison of quality of service of distance education at universities. *The Online Journal of Science and Technology (TOJSAT)*, 4(3), 8-19.
- Elnikova, G. A., Nikulina, N. N., Gordienko, I. V., and Davityan, M. G. (2020). Distance education in universities: Lessons from the pandemic. *European Journal of Molecular and Clinical Medicine*, 7(1), 3523-3529.
- Elsheikh, B. M. O. (2018). Reality of knowledge management application from faculty members' perspective in economics and administrative science Colleges in Sudanese universities. *European Journal of Business and Management*, 10(11), 142-157.
- Ibrahim, A. H., Mutiarin, D., and Purnomo, E. P. (2021). E-Services in Sudan during the Covid-19 pandemic as a model: A case study of University of Bahri-Sudan. *Journal of Governance and Public Policy*, 8(2), 165-183.
- Kaya, M. (2012). Distance education systems used in universities of Turkey and Northern Cyprus. *Procedia-Social and Behavioral Sciences*, 31, 676-680.
- Singh, G., and Paliwal, D. (2012). Higher education to anyone, anywhere, anytime through open and distance learning in India. *International Journal of Academic Research in Progressive Education and Development*, 1, 347-354.
- Taylor, J. C. (2001). Fifth generation distance education. *Instructional Science and Technology*, 4(1), 1-14.
- Todri, A., Papajorgji, P., Moskowitz, H., and Scalera, F. (2020). Perceptions regarding distance learning in higher education, smoothing the transition. *Contemporary Educational Technology*, 13(1), ep287.
- Tosun, N. (2021). Distance education practices at universities in Turkey: a case study during covid-19 pandemic: Distance education practices. *International Journal of Curriculum and Instruction*, 13(1), 313-333.
- Uhlig, G. E. (2002). The present and future of distance learning. *Education*, 122(4), 670-673.
- Ulmer, L. W., Watson, L. W., and Derby, D. (2007). Perceptions of higher education faculty members on the value of distance education. *Quarterly Review of Distance Education*, 8(1), 59-70.
- Viju, G. K. (2021). Online and distance learning In Sudanese Universities: A necessity in the light of the covid-19 pandemic. *International Journal of Engineering Applied Sciences and Technology*, 5(10), 11-19.