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Higher Education Study and Analysis Before and After Covid-19: Case Study of Kingdom of Saudi Arabia

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Abstract:

The Corona Virus (Covid-19) pandemic has caused an unprecedented crisis in all areas and education is not the exception. Further, all schools and colleges have been forced to deliver online course class which it is so hard to adapt to it. Online education is the only alternative to ensuring the continued education during this situation. However, the question remains whether the world is ready to use these alternative means of providing education without compromising the quality of education that must be imparted to students. The COVID-19 crisis exposes various challenges in all sectors with education system which the major challenge how to keep running smoothly the education system with the different pandemic precautions. Therefore, one of the major goals is to make appropriate arrangements to transfer the traditional education system to the online education system. Saudi Arabia was one of the first countries to adopt comprehensive quarantine and thus the emergency transition from presential teaching to online education. In this paper, we study and analyze the experience of the Kingdom of Saudi Arabia (KSA) in distance education before and after coviod-19. A quick strategy of online education was adopted and implemented by KSA during COVID-19. In fact, we conduct SWOC (Strengths, Weaknesses, Opportunities and Challenges) analysis of e-learning after Covid-19. Saudi Arabia provided distance education several years ago, and with Coronavirus it popularized and developed it. So in-depth knowledge of education technology, online teaching methods and understanding the future vision of education are among the most important elements of success for this sector, teachers need to develop a more interactive way to engage students in online learning resources.

Keywords: Saudi Arabia, Internet, E-learning, Covid-19, online education, SWOC analysis.

I- Introduction:

In 2020, suddenly the world faced the Covid-19 pandemic and various precautions were taken by governments to face of this pandemic. Specially, Social distance was imposed, and the education system was the first affected. all schools and colleges impose the online work. Two major trends have characterized the education landscape: the advancement of e-learning and the rapid global expansion of technology (Lee, 2008). In the first trend, e-learning has led to entirely new opportunities for students to access new courses and improve the knowledge of using technology include the use of computer, the use of software, and communication interaction. E-learning has become an indispensable part in the competitive services market (Kelly &Bauer, 2003). Several empirical studies have examined the e-learning critical success factors (Selim, 2007, Lee et al, 2009, Basak et al, 2016, Naveed et al, 2017, Alqahtani and Rajkhan, 2020). E-learning critical success factors were surveyed and grouped into 4 categories namely, instructor, student, information technology, and university support as presented in fig.1. (Selim, 2007).

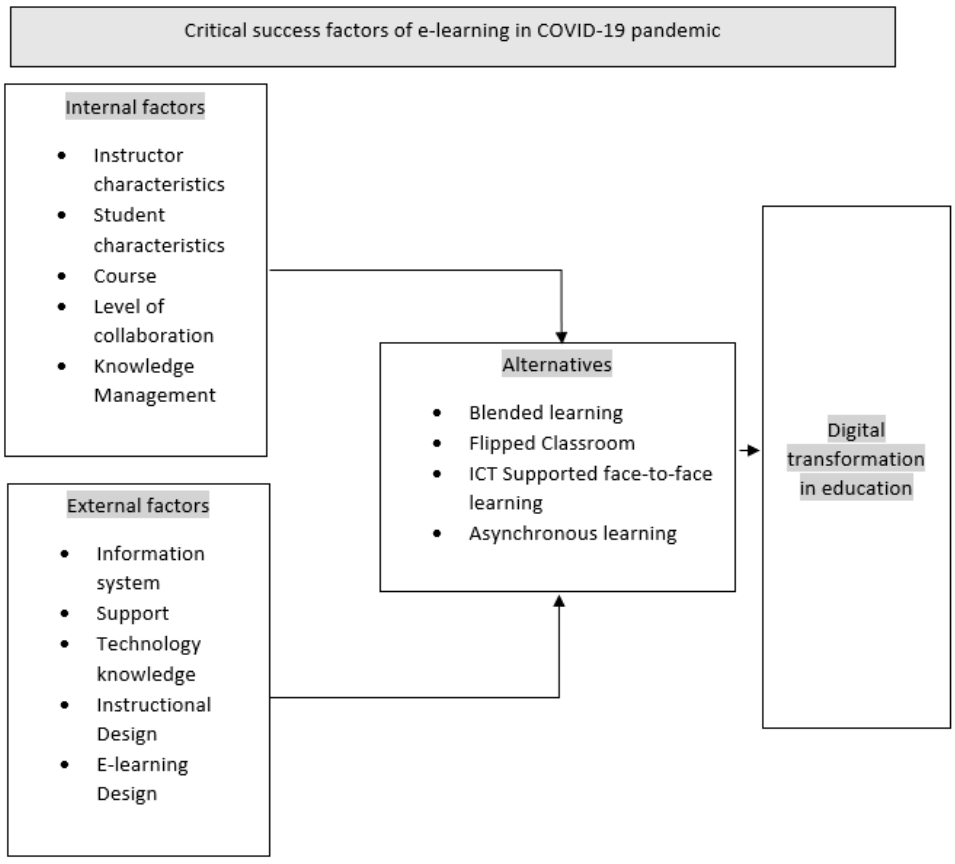


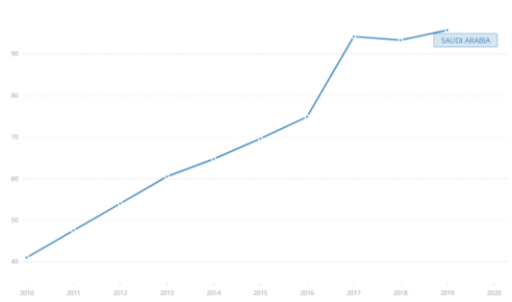
Fig.1.: Critical success factors problem hierarchy

In the second trend, the global expansion of technology has led to explosive growth of the information technology system and learning environment that are provided for both students and instructors. Certainly, IT environments and Web technologies in the field of education offer new solutions for implementing new didactic intentions in learning contexts. Thus, the internet provides learner's serval learning opportunities adapted to their needs. Platforms like the blackboard can stimulate student interest in learning and successfully improve the educational effect (Zhao and Yang, 2019). However, Artificial Intelligence, Smartphones, iPads, platforms, and all computer tools can enrich the content of teaching, increase awareness of student initiatives, stimulate their interest in learning, and improve the educational effect. New language is created by intelligent computers and artificial intelligence, technology could be one of the essential tools soon. For that, the link between learning and technology is important to understand. However, before the pandemic, investments in education technology reach $ 18.66 billion in 2019 and due to the Coronavirus, the global online education market is expected to reach up to 350 billion dollars by 2025 (IGI Global,2020).

So, it is important to analyze the experience offered by the quarantine period and understand the concepts and things that have happened, good and bad, and understand how to implement the content remotely without mistakes. In Saudi Arabia, Internet use has increased intensely, in 2020 (fig 2& fig 3), the number of Internet users was 31,856,652, almost 91.6% of the population (table 1), (IWS 2021). According to the Internet World Stats (IWS), the number of Facebook subscribers in KSA reached 26,350,000 in June 2016, with a 75% penetration rate.

Table 1. Saudi Arabia Usage &Population Statistics (IWS.2021)

Country	**Population (2021)**	**Users (2000)**	**Internet usage (2020)**	**% population (Penetration)**	**Facebook (2020)**	**% penetration**
Saudi Arabia	34,783,757	200,000	31,856,652	91.6%	26,350,000	75.8%



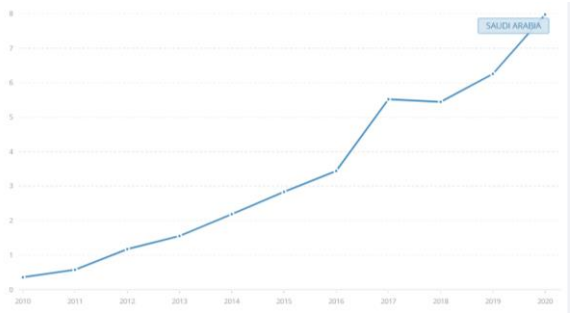


Fig. 2. Individuals using the Internet (% of population)

Fig.3. Secure Internet servers (per 1 million people)

(https://data.worldbank.org/)

The chapter will be organized as follow. Section 2 will present the KSA' Situation of e-learning earlier before the pandemic. In section3, we will describe the KSA' E-learning transformation at the time of COVID-19. Section 4 will develop an SWOC analysis of e-learning during Covid-19 in Saudi Arabia. section 5 recommendations and finally, section 6 the conclusion.

II- Saudi Arabia e-learning: from the beginning to post Covid-19

The government allowed the public to access the Internet in 1997 after linking research and medical institutions for the first time. In 1996, the Ministry of Higher Education (MOHE) established the Computer and Information Center (CIC) which provides a range of ICT services to schools and educational centers to design new curricula and develop the capabilities of both teachers and students. The Ministry of Education then launched an ambitious computer project in 2000 It aims to cover all schools in Saudi Arabia. This was followed by the National Schools Network project launched in 2001, to connect schools and educational directorates by means of a wide area network (WAN) covering the entire country. To facilitate e-learning, the Deanship of Distance Learning was established at King Abdulaziz University in 2007. The strategic plan of the e-learning project began in 2009 at Imam Muhammad bin Saud Islamic University (IMAMU), and the university is translating and publishing materials in Arabic with the aim of spreading Islamic knowledge. The virtual institution The Arab Open University (AOU), a branch of the UK Open University, started as a traditional institution for distance learning and developed alongside technology in education and is a project of Saudi Prince Talal bin Abdulaziz Al Saud, originally

using technologies such as broadcasting Television and radio, CD and DVD lectures, postal correspondence, and telephone tutoring. The institution also uses online resources with a mix of blended online courses. The Saudi Arabia branch of AOU reported 15,455 current students and 14,590 postgraduate students, studying in 130 courses in 2019 (the Arab Open University). The branch of the Arab Open University in Saudi Arabia offers courses in Business Studies, Computer Studies, Language Studies, and Education Studies.

Founded in 2007 with programs in English and Arabic, the University offers 4-year Bachelor's degrees in Islamic Studies (English) and Bachelor's degrees in Sharia and Qur'anic Studies (KIU 2017). The course includes watching online videos, completing reading materials, and then passing online multiple-choice exams. (Al-Hajj 2010, Al-Zoubi 2013, Basheel 2013, Nada et al. 2013). Also, The Saudi Electronic University was established in 2011 in cooperation with one of the oldest virtual universities in the United States, the University of Phoenix, along with universities in Minnesota and Ohio. Operating on a combined model, SEU offers bachelor's degrees (and one MBA) in computing and informatics, management and financial sciences, health sciences, science, and theoretical studies.

III- E-learning in Saudi Arabia duringd the COVID-19

With reference to World Health Organization (WHO) data, COVID-19 has been reported in more than 216 countries and there are areas with millions of confirmed cases[1]. This has led to the development of e-learning platforms in many countries. Saudi Arabia's large geographical area, large population, and geographical disparities between modern urban cities such as Riyadh and Jeddah and rural desert areas, some of which are still close to indigenous Bedouin lifestyles, pose a major challenge to the Saudi government to achieve justice. In educational resources during COVID-19, (Fig. 4).

The Saudi Minister of Education said: "Many axioms have changed with Coronavirus, there is a great trend for distance education." In the following, we summarize most of the platforms available to students to complete the educational process:

[1] World Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard. December 2019. Available online: https://covid19.who.int/

- Among the most important solutions were AIN's YouTube satellite lessons, which allowed more than six million students full access to the lessons. The Al Ain National Gateway for Educational Enrichment platform provided reliable and real electronic educational services. It serves as a digital incubator for interactive lessons, syllabuses, assignments, assessment batteries, and semester and final exams. All public and private school students benefited from this portal. Besides, private schools are free to add additional resources to enhance the learning of their students. Technical learning environments, such as Classera, Zoom, Microsoft Teams, and others, have been among the most popular CMC tools for learners and educators.

- (vschool.sa) The unified education system is one of the solutions offered by the Ministry of Education as another option for distance education. The ministry also sent advisory messages to students, parents, and teachers to join this system and benefit from its educational resources.

The "Future Gate" portal (fg.moe.gov.sa) provided users with CMC tools for teachers and students using simultaneous interactive lessons as an option available at any time and serving middle and secondary schools distributed over more than 33 educational directorates across the kingdom.

- Virtual Kindergarten: The Ministry of Education has also provided a virtual platform for distance education kindergartens for distance education children from 3 to 7 years old under the supervision of their parents, providing a variety of educational elements, instructions and educational content through 11 units according to a schedule that Monitor progress and achievement. At the end, there is an assessment of children's skills.

Fig. 4: distance Education tools during Covid-19 epidemic

-The Saudi Electronic University (SEU) and the National Center for E-Learning put together plans to prepare for the total transformation to distance learning around Saudi universities (fig 5).

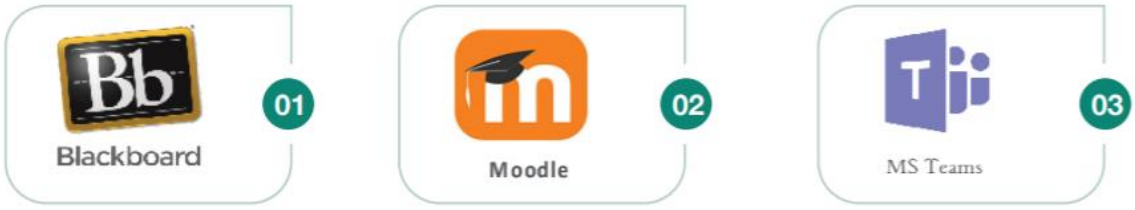


Fig.5. Examples of LMS and CMC tools used for Distance Education

Blackboard was the primary LMS technology used during the crisis. It had issues of technical glitches and failures that required technical solutions by the provider to avoid the repetition of this problem. Other CMC solutions were adopted to make up for any shortage or failure, such as Microsoft Teams, Zoom, among others, to provide synchronous communications between instructors and learners. During School closing, 109 million browsing for digital content on educational platforms, 1,417 MA and PH.D theses defended via LMS solutions, mor than 2.6 million virtual classroom, 1.4 million Student, 2.8 million Instructional hours, more than 75 thousand Faculty member, 4.5 million E-test and more than 420 thousand Educational Subjects.

Distance education system statistics: 60 million home views of Ain Satellite TV lessons, 600 thousand views of Al Ain satellite channel, 1.3 million discussion sessions, 2 million electronic content lessons, 600 thousand YouTube subscribers, 4493 TV lessons, 715 thousand publications. Exams, 1.8 million HomeWorks assignments posted, 2,835 hours of educational broadcast, 1,107 review cases, 100 technical and management professionals and 413 thousand virtual classrooms (fig 6).

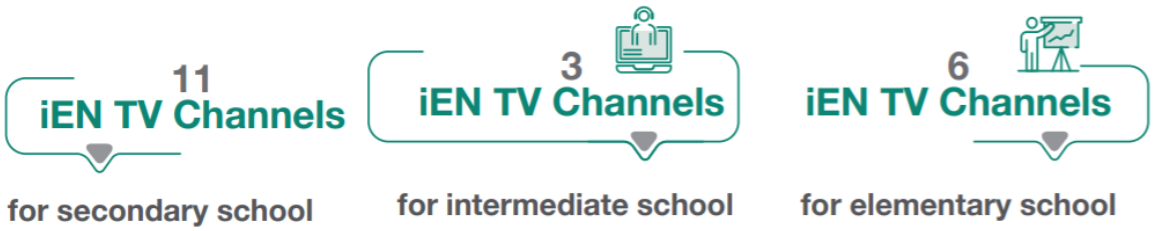


Fig. 6. Education channel

IV- The SWOC analysis to KSA E-learning experience

We develop an Strengths, Weaknesses, Opportunities, & Challenges (SWOC) analysis of online learning during the Corona Virus pandemic to give some suggestions and recommendations for the success of online mode of learning during a the crisis.

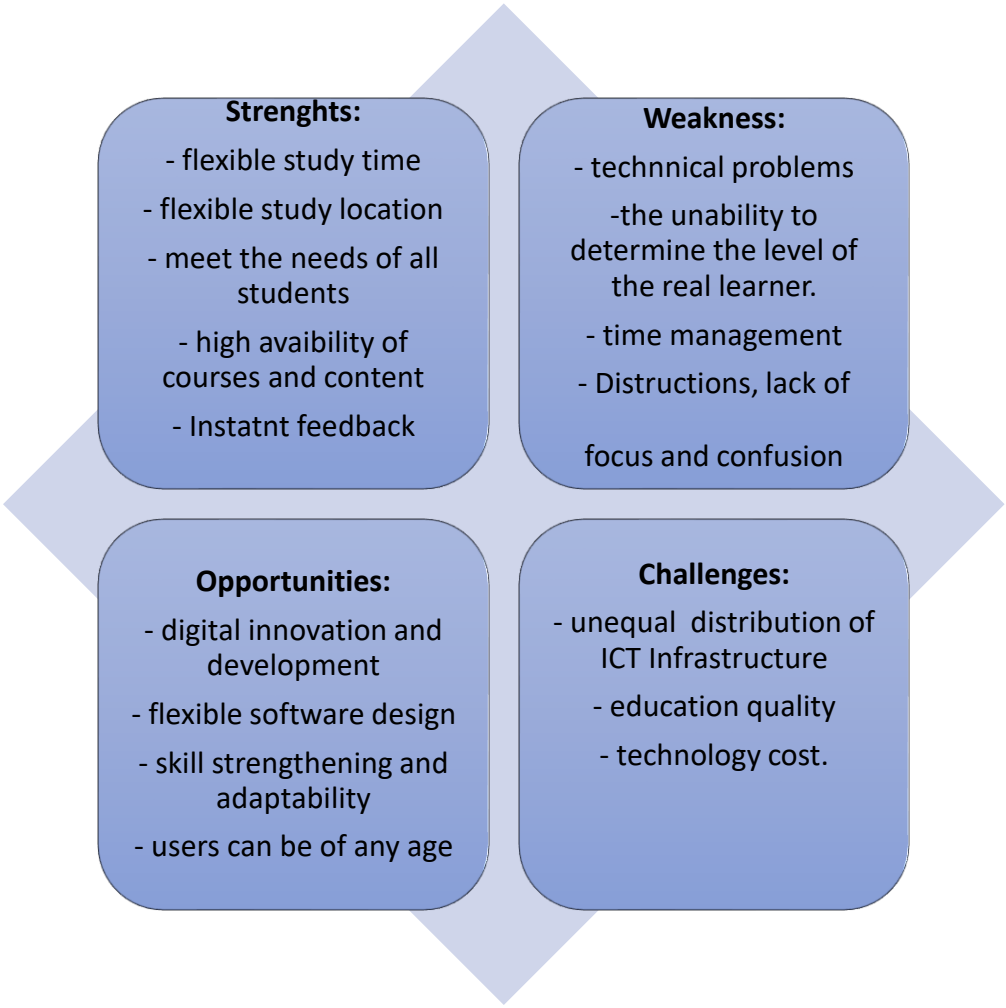


Fig. 7. SWOC analysis during COVID-19

One of the strengths of online learning is to save the learning process in such difficult times as Covid-19 pandemic. Student centered with a great deal of flexibility in terms of time and location. E-learning also enables the customization of procedures and processes based on the needs of learners. Furthermore, there are a lot of online tools available that are important for an effective

learning environment such as using a combination of audio, video and text to reach students which helps in creating a collaborative and interactive learning environment where students can provide their immediate feedback, ask questions and learn with fun.

The Anywhere-Anytime e-learning feature is also useful in times of crisis, such as the Covid-19 crisis. Place closures and unsafe road travel have caused a lot of problems but at least e-learning will not deprive students of access to education in their homes or workplaces as technology provides innovative and flexible solutions in times of crisis to combat disruption and help people communicate and even work almost without the need to face-to-face interaction.

However, e-learning has certain weaknesses as it can hamper direct communication and human touch between the learner and the teacher. The student can face many technical difficulties that hinder and slow down the teaching and learning process (Favale et al., 2020). Also, although it is considered as a force for online learning, the flexibility of time and space has its fragile sides and creates problems due to the students' not serious behavior. All students and learners are not the same, they differ in their abilities and skill levels. Some people do not feel comfortable learning online, which leads to increased frustration and confusion.

As for the opportunities offered by distance learning, they are numerous, including: Prosperity and development of the educational process in terms of experimenting with modern learning methods and breaking out of traditional methods. (Favale et al., 2020). Now, academic institutions can seize this opportunity by making their teachers teach and students learn through an online methodology. This crisis will be a new stage for online learning and will allow people to look at the fruitful side of e-learning technologies. This is the time when there is plenty of room for amazing digital innovations and developments. Educators can practice technology and can design various flexible programs to better understand students as the use of online learning will test both the teacher and the learners. It will enhance problem-solving skills, critical thinking abilities, and adaptability among students. Users of any age can access online tools and reap the time and location flexibility benefits associated with online learning. Teachers can also develop innovative educational curricula. EdTech startups have plenty of opportunities to revolutionize almost all aspects of education from teaching, learning, assessment, assessment, results, certifications, degrees, etc.

Some of the challenges of online learning:

Changing teaching methodologies and engaging students in the teaching and learning process: It is a challenge for educators to move from the traditional mode of teaching to the online mode. It is difficult to develop content that not only covers the courses but also engages students (Kebritchi et al., 2017). The quality of e-learning programs is a real challenge as there is a lack of quality standards, quality control, e-resource development and e-content delivery. Despite the many advantages associated with distance education in times of crisis, consideration should be given to developing and improving the quality of virtual courses offered in such emergency situations (Affouneh et al., 2020).

E-learning involves a lot of time and cost. Investment is required to acquire hardware and equipment, maintain equipment, train human resources, and develop online content. Therefore, an effective educational system must be developed to transfer the educational process via the Internet.

Not all teachers and students can access all digital devices, the Internet and Wi-Fi. Lack of proper digital tools, lack of internet connections, or insufficient Wi-Fi connections can cause a lot of problems due to many students missing out on learning opportunities. Institutions should make efforts to ensure that every student and faculty has access to the required resources. They should also ensure that all educational applications work on mobile phones as well, in case students do not have laptops. Therefore, steps must be taken to reduce the digital divide.

We can learn a lot in this difficult situation. Lots of tools are available, and teachers are required to select and implement the best tool for imparting education to their students. A step-by-step guide can be prepared by academic institutions that can guide teachers and students on how to access and use the various e-learning tools and how to cover key curricular content via these technologies and thus reduce digital illiteracy. Teachers can present the curriculum in different formats, i.e. they can use videos, audios and texts. It is useful for teachers to supplement their lectures with video chats, virtual meetings, etc. to get instant feedback and maintain personal contact with students.

V- Recommendations:

The interest in integrating electronic pedagogies into the KSA has been increased and will be increased more and more after the successful experience in time of COVID-19 epidemic. Using a new technology in education did not represented a lack any more. Saudi Arabi has succeeded the unexpected challenge and will undoubtedly fully adopt e-learning as an international education

best practice. to future development of e-learning in KSA some lacks must be avoid, we notice some of them:

- Need to find a balance between quantity and quality of e-learning resources to be distributed to e-learners in all regions
- Lack of sufficient e-learning resources to meet the diverse needs of the students and access to materials developed overseas
- Unfair disadvantage to the students living in remote areas compared to those living in cities
- but regulatory frameworks, educational administration, and teacher training programs will need to be further developed.
- Plagiarism was visible in student online discussions in the form of “cut and paste” from the Internet. Fachartz et al. in a randomized controlled trial found that a blended-learning clinical course in family medicine at Taibah University medical school was more effective than the traditional course (2013, p. 12).

Certainly, IT environments and Web technologies in the field of education offer new solutions for implementing new didactic intentions in learning contexts. thus, the internet provides learner's serval learning opportunities adapted to their needs. Platforms like the blackboard can stimulate student interest in learning and successfully improve the educational effect (Zhao and Yang. 2019). However, Artificial Intelligence, Smartphones, iPads, platforms, and all computer tools can enrich the content of teaching, increase awareness of student initiatives, stimulate their interest in learning, and improve the educational effect. Through e-learning, the student has opportunities and platforms to pursue his learning without being in the classroom, an online course system can affluence the pressure of teachers on traditional teaching (Liu, J. 2018).

IV. Conclusion

Learning has substituted from its traditional image to its online image, for that, teachers need to learn how to create, facilitate, and evaluate online courses and how instructors can sufficiently interact with students in exclusively online systems. without forgetting to work on the emotional and psychological growth of their students. Teachers must develop much more interactive methods to engage students with online learning resources and create the ultimate merged learning approach to fit the needs of students with various learning styles. Also, it maintains a student's motivation in the education stage. The teacher has to build his students to

create adaptable e-learning: upskilling the student is vital as the more knowledge student gain, the faster the university can evolve and thrive. An environment that priorities student's satisfaction can go a long way towards keeping your students motivated. Implement flexible learning schedules, use reward systems and create a happy virtual environment

After COVID-19, new standards will be set out in education. E-learning will take an important place paving the technique for a more reachable and qualified system. E-learning is on an open path to success especially after the student has experienced this new online environment in the period of the Coronavirus epidemic. The global move from traditional education to fully online education change and transform the classroom for the next years. Teachers have to focus in-depth knowledge of online teaching methods and realize the future vision of education before implementing online learning programs and platforms. They should also emphasis on their development and the use of software that offers a good experience and will combine it with an in-person teaching method.

Saudi Arabia is involved since 2002 in e-learning platforms such as Moodle or Backboard. the kingdom has already implemented communication strategies and challenges, including conflict management, effective work in virtual teams, and online leadership. Covid-19 was "a good opportunity" for these countries to test their ability to manage the crisis, particularly in terms of technological education, on which it has invested in.

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