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Adoption of Online Higher Education System in Saudi Arabia During the COVID-19 Pandemic: A SWOC Analysis

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Abstract

Saudi Arabia's online higher education system has expanded significantly during the COVID-19 pandemic. During this epidemic, Saudi universities have switched from in-person instruction to online instruction to ensure the continuity of education. The shift to online higher education has occurred at a rapid speed. Saudi governments have temporarily closed universities since 2020 to prevent COVID-19 from spreading. During that time, technological advancements were essential for accelerating learning and improving interaction among learners and their teachers. Before the pandemic, higher education used e-learning methods, which we discussed in this article. This study examines the Online Higher Education System by SWOC analysis (Strengths, Weaknesses, Opportunities, and Challenges) for the COVID-19 epidemic. In order to better understand SWOC Analysis, this study employed qualitative research techniques. This study also investigates the challenges and opportunities faced by students, faculty, and administration in online higher education in Saudi Arabia during the deadly COVID-19 virus. It also offered some suggestions for Saudi universities on how to deal with these issues and challenges. This study's findings suggest that to meet the demands of a continually changing world and revolutionize education during the COVID-19 Epidemic, policymakers, university administrators, curriculum developers, and researchers coordinate national e-learning strategies, systematically integrate technology, and develop e-learning curricula.

Keywords: Online Higher Education, COVID-19, Pandemic, SWOC, Saudi Arabia.

1. Introduction

The COVID-19 Pandemic, which began in the Chinese city of Wuhan in November 2019 and quickly spread worldwide, shocked everyone. Because effective preventive and treatment methods, including vaccinations, were not yet widely available, self-isolation was the only way to reduce or stop the epidemic (World Health Organisation, 2020). The COVID-19 epidemic has dramatically altered the global higher education setting, pushing a rapid and unprecedented shift toward online learning. This transition has been particularly apparent in Saudi Arabia, where educational institutions have reacted to the challenges brought by the global health crisis. The pandemic required Saudi Arabian universities to respond quickly, forcing them to reconsider traditional teaching methods and adopt online education as the primary mode of instructional delivery. This move addressed immediate public health concerns and created new opportunities for innovation and flexibility in higher education in the Kingdom. The article examines the fundamental characteristics of online higher education in Saudi Arabia in the wake of the COVID-19 pandemic, evaluating the problems encountered, the remedies implemented, and the potential long-term implications for the education sector in the country. The widespread effects of the pandemic in Saudi Arabia extended to the country's educational system, which was one of the areas hardest hit. After the government established restrictions on students' and teachers' ability to make direct physical contact with one another, the first educational measures implemented were the shutdown of universities and the delivery of instruction via the Internet. This article discusses the effects on higher education and e-learning systems during the COVID-19 pandemic and how Saudi educational sectors reacted to the problem using virtual learning. The conclusion guides how to offer online learning to improve learning outcomes for people working in the academic and educational sectors, especially syllabus creators.

2. Objectives of the Study

1. To analyze the growth and development of the Online Higher Education System in Saudi Arabia during the COVID-19 pandemic.
2. To assess the Online Higher Education System in Saudi Arabia during the COVID-19 pandemic by SWOC analysis (Strengths, Weaknesses, Opportunities, and Challenges).

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3. To enlist some challenges and opportunities faced by students, faculty, and administration and provide some suggestions for the success of the Online Higher Education System in Saudi Arabia during the COVID-19 pandemic.

3. Data Sources and Research Methodology

This study is entirely based on secondary data from journals, reports, company websites, scholarly articles, research papers, and other academic publications. This study employed qualitative research techniques. This study is descriptive in nature and seeks to understand the significance of the online higher education system during the COVID-19 pandemic. Content analysis has also been utilized as the research tool to examine the data gathered from various sources for this study. Based on earlier studies, it was also feasible to identify the issues and challenges related to online higher education and possible suggestions. During this pandemic, the SWOC analysis was also carried out to identify better the many strengths, weaknesses, opportunities, and challenges related to online higher education.

4. The Environment for Online Learning in Higher Education Systems Before COVID-19 Pandemic

Saudi Vision 2030 is a revolutionary national vision created by the Saudi government (2018). The Saudi Vision 2030 states that a strong economy with a greater emphasis on knowledge may be built in Saudi Arabia by "raising the performance effectiveness and applying the newest support technologies in the education system" (Ministry of Education, 2017). In 2018, the government spent $192 billion on education. (Invest Saudi Arabia, 2018). This fund supported the educational sector's professional development and expansion by developing useful curricula and integrating technological resources. The e-learning vision is carried out and overseen by the National Centre for e-Learning and Distance Learning (NCeL), which is responsible for enhancing the e-learning program and creating a proper learning environment for technology integration into course syllabi. According to the most recent reports, Saudi Arabian universities have difficulty incorporating technology. These difficulties include online courses' poor design and quality (Alebaikan & Troudi, 2010). According to Al Jarf (2007), Saudi Arabia lacks "standards, norms, and procedures for utilizing online courses." Furthermore, no empirical studies exist on how to organize practice and research in order to pedagogically integrate and analyze technology (Albugami & Ahmed, 2015). Moreover, the transfer from traditional learning to technological environments is difficult (Alshahrani & Ward, 2014). There are issues with shifting from teacher-centered to student-centered models, in which students take on passive educational roles (Al-Gamdi & Samarji, 2016). According to Quadri et al. (2017), "It has been noted that the successful implementation of e-learning via numerous Saudi Arabian Universities does not appear commensurate to the enormous government spending in technology for education."

5. Saudi Arabia's Online Higher Education System During the COVID-19 Pandemic

5.1. How Saudi Arabia's Higher Education System has Responded to the COVID-19 Pandemic

Saudi authorities have suspended university activities till further notice since March 2020 to stop the coronavirus outbreak. Faculty members are currently transferring their instruction to an online format. Unfortunately, universities' quick adoption of online education systems highlights less effective online pedagogy and more inadequate educational institutions, as well as how disadvantageous students and teachers are in an online setting due to their limited access to technology and the internet. According to the Ministry of Education, "as per institutions, the choice to call up administrators or professors will be left to university directors as they will need to continue online courses and see what matches their curriculum" during the initial phase of the Epidemic (Naar, 2020). Many pupils have been denied access to technical tools like the internet due to a lack of skills. Teachers do not have enough ways to incorporate this technology into educational practices. Saudi universities have begun to use a Learning Management System (LMS) within the constraints that are already in place, and various online seminars have been given to facilitate its deployment. The Ministry of Education said that distance learning has transformed into a futuristic tactical option requiring continuous growth in the second phase of the COVID-19 epidemic in 2020 (Naar, 2020).

5.2. Carrying out Literature Review During the COVID-19 Epidemic

In order to understand the educational systems in this region and gain a deeper understanding of their academic problems, it is very critical to compare the technological preparedness of higher education institutions in the Gulf Cooperation Council states during the COVID-19 pandemic before discussing the situation of the Saudi Arabian educational system. These countries are among the most prosperous in the world, with stable political and economic institutions and positive economic growth based on oil income. They possess cultural backgrounds as well as political and economic systems. However, it is important to mention that their "governments are not attentive to education and that education indicators are not particularly excellent" (Erdogan et al., 2020). Al-Taweel et al. (2020) state that widespread student dissatisfaction, a lack of appropriate technology, such as hardware, and inadequate network access to online sources make Kuwait's

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complete transition to virtual education during the COVID-19 pandemic inappropriate as an example of a virtual learning environment. A good design and planning must involve training instructors on what to anticipate from e-learning programs about technological concerns to integrate technology successfully. Kuwaiti Ministry of Education administrators should oversee the education system throughout the Pandemic (Alhouti, 2020). At the same time, Hussein et al. (2020) conducted a case study in the United Arab Emirates and discovered that stakeholders gave instructors insufficient assistance for their lecture presentations. Furthermore, teaching staff were not fully educated to teach online courses, which usually negatively impacted the learning experience.

With regard to the Saudi Arabian context, a study conducted by the Harvard Graduate School of Education (2020) to examine global preparedness and reaction to COVID-19 found that in Saudi Arabia, a lack of practical expertise in incorporating technological advances, online teaching methods, and instructional materials, students' psychological abilities, professional growth for educators in information and communications technology abilities, and evaluation instruments hampered progress. Almaiah et al. (2020) conducted a study in Saudi Arabian and Jordanian universities during the COVID-19 pandemic. They discovered that "the challenges facing the usage of e-learning system are not only limited to the infrastructure issues but also include other such as e-learning system technical issues, change management issues, course design issues, and computer self-efficacy." Khalil et al. (2020) also did a qualitative analysis to learn more about how Saudi students see online education in the context of the COVID-19 pandemic. Researchers observed that the student's perception of the subject matter was negatively impacted by methodological difficulties that the students faced, including problems with quality assurance in the lecture content and delivery. Al-Jarf and Ebaid (2020) found that learners who completed online courses lacked learning objectives and incentives, took on passive roles, were inefficient in their time use, and seldom communicated with other students.

Additionally, Alqurshi's (2020) study involved 74 professors from ten additional local schools and 700 pharmacy students from 19 other local colleges. About 60% of faculty members are concerned about the significant negative correlation between the lack of learner-tutor and learner-learner communications and overall learner satisfaction. The study conducted by Alturise (2020) at Colleges of the Western Branch of Qassim University assumed that approximately 59.08 percent of teachers felt that using an online mode of study made it difficult to enable the course targets because the electronic course material differed from what was learned before COVID-19. According to him, the student's problem-solving abilities were hampered because it was challenging to communicate during online sessions (Alturise, 2020).

In a normal (after the pandemic) classroom, colleges should be prepared to adapt their educational programs and methods of instruction to keep students interested and focused. Identifying practical options should be the objective, and this will be covered in more detail in the next section.

6. Future-Looking: Introducing Online Learning in Higher Education System to Saudi Arabia

Since the outbreak, Saudi Arabia's educational reality has evolved. The entire transition from traditional education to virtual instruction for specific courses is one of the inevitable developments that might be expected during the pandemic, according to the Ministry of Education (2020). The view of online education has also changed, moving from being considered an extra educational option to the primary method of teaching and learning. Therefore, Saudi educational systems need to be prepared to accept high-quality online instruction beyond the sporadic emergency measures mandated by difficulties such as COVID-19, and it is imperative to find solutions to concerns hindering the effectiveness of online instruction. According to Ayotola & Abiodun (2010), quoted in Turugare & Rudhumbu, 2020, the systematic method integrates top-down, bottom-up, and inside-out processes, which may aid in successfully integrating technology in higher education. Successful institution management is the goal of the top-down strategy, according to Turugare & Rudhumbu (2020). Strategic plans and procedures for e-learning and information technology service supervision within the institution are required by institutional management. For the institution to successfully integrate technology, the second method is to use workforce planning techniques (Turugare & Rudhumbu, 2020). The third strategy for successful technology integration should place a premium on the attitudes and actions of teachers and pupils. These characteristics suggest that instructors must be trained in using important computers to provide a pedagogical model in the classroom (Etmer, 2005; Turugare & Rudhumbu, 2020). A learning model should also be available to students to improve their capacity to set goals, take out exercises, evaluate their development, and search for information (Bitner & Bitner, 2002; Turugare & Rudhumbu, 2020). These three approaches will highlight the ramifications for higher education policymakers, syllabus designers, and academic sectors.

7.1. Implications for Higher Education Policymakers

7.1.1. Top-Down Approach

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Turugare and Rudhumbu (2020) argue that the top-down strategy assigns the responsibility to decision-makers to oversee and formulate policies, which requires considering the vision for e-learning and the rules governing its integration. Later, these rules might be detailed and contextualized by university sectors by moving to a lower level of the organizational structure.

Systems for electronic management and regulation are vital because they help create a learning environment for policymakers, which develops administrative resilience and establishes technological norms for academic domains. These include professional competencies, e-curricula design, visions, strategic policies for incorporating technology, assessment, and evaluation, as stated by the Technology Standards for School Administrators Collaborative (2001).

Finally, policymakers aim to give comprehensive professional guidelines for both faculty and students. The top-down technique comprises developing processes for the interactive and efficient use of technology, as well as raising awareness among students and other university employees about the advantages of technology for education in boosting productivity. It is critical that they develop techniques and assessment procedures that ensure alignment between technology, pedagogy, and the dispositions of educators and learners.

7.2. Implications for Educational Fields and Curriculum Designers, particularly in Higher Education

7.2.1. Bottom-Up Approach

Under the bottom-up approach, policymakers get input from the academic community and utilize it to inform the development and modification of e-learning policies following the integration and evaluation of online education. The bottom-up approach partially validates the links between the tactical goals. Additionally, this tactic offers compelling evidence of what is possible. Effective procedures, such as planning, design, implementation, and evaluation, must be implemented because this strategy focuses on integrating and developing technology (Turugare & Rudhumbu, 2020). These could be a part of an organizational execution plan that increases student interest by utilizing technology in a beneficial and effective way.

7.2.2. Planning Stage

The first stage of planning is to analyze the procedure and create a strategic plan. This includes selecting the best technological solutions to assist, improve, and optimize information delivery based on an in-depth understanding of the consumers' needs and preferences. University sectors should examine user preferences, instructional expectations, and online learning issues. This could assist them to accept and change NCeL's regulations, rules, and policies to reflect the University's mission and vision.

7.2.3 Developing Stage

The second phase of the development process must include educational decisions such as creating an online learning platform, delivering interaction, and creating an online curriculum. The design of the environment should be based on thoroughly investigated learning theories. The development phase would ensure that the online environment would have a major impact on the learning process and serve a significant role in acquiring new knowledge. As a result, learning theories should serve as the foundation for environment design.

7.2.4. Implementation Stage

Third, when the developing stage is completed, the planning stage is carried out during the subsequent implementation stage. According to Cuesta (2010), three essential elements are required for this phase to be successful: (a) creating a prior education procedure for both teachers and students to practice, (b) rapidly assessing pupils, and (c) arranging all necessary scenarios, including locations, tools, and staff members. To be successful, the execution stage of this project demands a high level of participant involvement (Cuesta, 2010).

7.2.5. Evaluation Stage

When evaluating course learning outcomes, the fourth stage involves considering how assessment techniques align with both cognitive and emotional characteristics, as highlighted by Paechter et al. (2010). The primary focus in this stage is to determine the program's success. Every program is expected to yield specific learning outcomes. Examining these outcomes typically occurs during the student phase but can also be integrated at broader levels such as the educational setting, college, or region. Nusche (2013) suggests that the number of results, such as test scores, graduation rates, and

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the quality of the student's performance, must be considered. Furthermore, university sectors must employ a variety of ways to assess and evaluate acceptable usage of technological tools for studying, communication, and research.

8. SWOC Analysis of Online Education System in Saudi Universities during the COVID-19 Pandemic.

During the COVID-19 epidemic, we undertake a SWOC (Strengths, Weaknesses, Opportunities, and Challenges) analysis of the online higher education system to give suggestions for the effectiveness of the online learning strategy.

Strengths	**Weakness**	**Opportunities**	**Challenges**
Promotes Self-Directed Learning	Lack of Technical Issues and Integration	Opportunity for Creativity and Technological Advancement	Inequitable Allocation of ICT Facilities
Promotes Independent Learning	Student Capacity and Trust Level	Adaptable Software Development	Challenges Regarding Quality of Higher Education
Flipped Classroom Approach	Time Administration	Developing abilities, Problem Solving, and Innovative Thinking	Technological Gap and Illiteracy
Efficient Communication	Interruptions, Irritation, Nervousness, and Perplexity	Preparedness and Flexibility to Upcoming Online Education	Price and Demise of Technology
Flexible Study Time and Location	Limited Student Engagement	More Student Collaboration at the National & International Level	Curricular and Co-curricular Activities Issues
Flexibility of Learning	Lack of Personal/Physical Attention	No Age Limit for Users	Internet and Connectivity Problems
Catering to a Wide Audience	Inadequate Faculty and Student Motivation	A Creative Pedagogical Strategy	Executing a Valid, Reliable, and Workable Electronic Evaluation
Address the needs of every student	Lack of Knowledge of New Software	Inclusion of Blended Learning Programs in the Classroom	Cybersecurity, Hacking of Data, Exam Software
High Availability of Courses and Content	Insufficient Information and Computer Technology Fluency	Increasing Interest in Different Categories of Students	Student and Faculty Readiness for E-learning
Instant/Immediate Feedback	Lack of Student-Teacher Interaction	Technological Integration into the Learning Space	Failure to Engage Stakeholders (such as Faculty, Students, and IT Staff)
Provides Training	Inadequate Technological Knowledge	Enhancement of digital skills	Inability to Modify Course Content to Meet the Needs of Learners
Personalization Based on the Learner's Needs	Inadequate technical abilities	Creation of novel courses via the internet	Inability to Access Outside Educational Materials
Provides a Specific Intuitive Character	Lack of Devices/Gadgets	Use of Sophisticated online learning Instruments, Digital Library facilities, and Moodle	Limited Face-to-Face Communication
Achieves a Collaborative Learning	Lack of Internet Accessibility	Creation of an online Teaching/Learning and Evaluation Method.	Absence of a Methodical Timetable
An Overview of the Digital Revolution	Difficulty in Understanding and Comprehending Video Lectures	Electronic Portal For Quality Improvement Cell	Insufficient experience with internet-based tools
Improvement of Technology Utilisation & Computer Skills	Power Downtime	Computerized Tutoring and Mentoring Software	Lack of Knowledge among Faculty Members
Enhancing Capacity and Strengthening Faculty	Time and Resource-Intensive task	Vibrant Educational Setting	Lack of Commitment and Assistance from Faculty Members
Easily Accessible Study Materials	Reduced Student-Teacher Interaction	Encouragement of Artificial Intelligence Applications	Lack of Safety, Security, and Privacy Issues
Creation of Alternative Instructional and Assessment Methods	Occupational Separation	Innovation in Entrepreneurial and Technological Strategies	
Greater Learner Independence			

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9. Challenges faced in Online Teaching-Learning related to Students, Faculty, and Administration in Saudi Arabia during the COVID-19 Pandemic

Students	Faculty	Administration
Poor Internet Connectivity Lack of Availability of Laptops Excessive Exposure to Digital Gadgets Incapability to Handle Online Classes Feeling Stress, Anxiety, and Pressure Difficulty in Comprehending the Online Admissions Process Unanswered Admission Inquiries Lack of Academic Motivation among International Students.	Lack of Training Lack of Technical Knowledge, Lack of Student Passivity Low Student Response Rate Difficulty in Marking Attendance Difficulty in Maintaining Online Discipline Additional Workload and Extended Screen Exposure Stress, Anxiety, and Exhaustion Lack of Peaceful Environment and Insufficient Personal Space at Home Work-Life Harmony	Implementation of Procedures and Policies Delivering and Managing Online Classes Providing Teachers with Technical Assistance Organizing Counseling Sessions Examinations for Monitoring Managing Evaluation and Results on Time

10. Opportunities of Online Teaching–Learning related to Students, Faculty, and Administration in Saudi Arabia during the COVID-19 Pandemic

Students	Faculty	Administration
Convenience Lifelong Learning Ensures Undisrupted Learning Improves Mental Health Accessibility of Time and Place Flexibility Promotes Self-Directed Learning Self-Discipline Continuous and Timely Feedback	New Information and Technological Advancement Ease in Modifying, Upgrading, and Organizing Teaching Materials Influential in Developing a Rapport with Students Saves Money on Travel to Physical Locations Simplicity in the Administrative Work Simple Cloud Lecture Recording Encourages Innovation and Creativity in Teaching Strategies	Effective Use of Already-Existing Resources Ease in the Admissions Procedure Continuity of Academic Calendar Throughout the Pandemic Simple Documentation of Online Interactions Simple Record Keeping Manages Electronic Assessments, Grading, and Evaluation with Simplicity

11. Suggestions for Addressing Issues and Challenges Faced by Saudi Universities during the COVID-19 Pandemic

1. Provide Instruction Manuals and Training
The University should offer students thorough orientation and user guides that may be used as in-depth resources to facilitate their use of the online learning environment.

2. Engaging Virtual Learning Environment
To make the rigorous educational process more appealing and thrilling, make the online learning process dynamic and incorporate visual and audio elements. Additionally, while teaching practical information, use more effective teaching techniques. For example, one can utilize a unique electronic whiteboard program that comes with every item (pens, engineering tools, tables, etc.).

3. Enhance the Technical Infrastructure of the University
To make the online system a fundamental aspect of education and instruction, enhance computer ability, and keep the online educational system up to date.

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4. Reduce Strict Exam Requirements
Students are worried that the outbreak will harm their exam performance, which is why they want flexible measures in their assessments. Students offered a variety of suggestions in this regard, such as receiving clear instructions for tests, tasks, and initiatives; having a greater number of instructors available to answer questions from students during exam periods; having the option to retake an exam in the event of technical difficulties; the benefit of taking exams on different devices; and modifying assessment types to suit the online mode.

5. Deal with the Issue of Inadequate Hardware or Internet Access.
The provision of gadgets, internet access, and cell phone services and applications to underprivileged pupils should take precedence. Universities want to collaborate with well-known computer providers and manufacturers to locate affordable PC and laptop options for students.

6. Use a Wide Variety of Methods for Instruction
While instructors can record lectures in advance or deliver live instruction, students would rather have both alternatives available simultaneously. On the other hand, some students prefer in-person instruction since it gives them more opportunities to engage with teachers and peers. Conversely, some students like to listen to lectures that have been recorded because they might have to look after family members or share technology with others.

7. Offer a Regular Schedule
Like traditional education, universities or colleges and academic staff must establish a regular timetable for lectures and exams, and students must follow it.

8. Provide Online Hours of Operations
Faculty members could schedule their meetings at appropriate times and use meeting platforms that facilitate numerous participants throughout sessions to stay in contact with students.

9. Create a New Communication Platform
The government must create a new platform to communicate quickly and announce lecture timings, test times, due dates for assignments, and project deadlines. Faculty members and students can use this platform as a resource.

12. Conclusion

The above study concludes that the traumatic COVID-19 pandemic challenged conventional teaching and learning methods and completely changed the higher education system into online mode. It required a shift from traditional education, as global teacher and student experiences exposed various opportunities and challenges associated with the online higher education system. It was observed that the sudden transformation did not happen quickly; instead, it took a lot of hard work, careful planning, and implementation on the part of many people. The disadvantages of online learning in higher education greatly surpassed the advantages, putting teachers and students through high anxiety levels as colleges and universities were unprepared for such a severe pandemic and subjecting them to learning immobility in chaotic circumstances. The COVID-19 pandemic also profoundly impacted educational institutions' capacity for change, viability, and flexibility. However, if all parties concentrate on working together, online higher education might be advantageous and have positive effects. In this context, various suggestions and possible solutions have been offered to equip the education sector better to handle the COVID-19 pandemic's disruptions in Saudi Arabia and prepare for similar unforeseeable future pandemic circumstances. Thus, the COVID-19 pandemic prompted a rapid shift to online higher education in Saudi Arabia, demonstrating the resilience of the education sector. While giving flexibility and accessibility, issues such as digital equity and educational quality surfaced. The experiences of this period will shape the future of higher education in Saudi Arabia, with a focus on continuing innovation and adaptation. The educational implications of the study will assist the government, schools, curriculum developers, and policymakers in improving the education system.

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